SKOBELKIN, O.K., kand.med. nauk (Kalinin)

Surgical complications in ascariasis. Med. sestra 22 no.10: 30-32 O'63 (MIRA 16:12)

SKOBELKIN, O.K. (Kalinin, 2-ya ul. Shevchenko, d.40, kv.25)

Extensive traumatic diaphragmatic hernia in a child. Vestn. khir. Grekov. 90 no.4:91 Ap'63 (MIRA 17:2)

1. Iz fakul'tetskoy khirurgicheskoy kliniki (zav. - prof. A.G. Karavanov) Kalininskogo meditsinskogo instituta na baze Kalininskoy oblastnoy bol'nitsy No.1 (glavnyy vrach - zasluzhennyy vrach RSFSR A.A. Sokolov).

SKOBELKIN, V.K., kand. med. nauk (Kalinin, 5, 2-ya ulitsa Shevchenko, d.40, kv.25)

Choledochoduodenal fistulas. Vest. Khir. 91 no.10:113-114 O '63. (MIRA 17:7)

1. Iz fakul'tetskoy khirurgicheskoy kliniki (ispolnyayushchiy obyazannosti zaveduyushchego - dotsent N.V. Zavadovskaya) Kalininskogo meditsinskogo instituta (rektor - dotsent A.N. Kashnev) na baze oblastnoy klinicheskoy bol'nitsy (glavnyy vrach - zasluzhennyy vrach RSFSR A.A. Sokolov).

SKOBELKIN, O.K., kand.med.nauk

Revascularization of a mobilized stomach with the aid of the splenic artery. Trudy KGMI no.10:372-374 '63.

(MIRA 18:1)

1. Iz kafedry fakul'tetskoy khirurgii (zav. kafedroy zasluzhennyy deyatel' nauki RSFSR - prof. V.S.Semenov) i kafedry torakal'noy khirurgii i anesteziologii Ukrainskogo tsentral'nogo instituta usovershenstvovaniya vrachey (zav. kafedroy - prof. A.A.Shalimov).

L 20270-65 AMD
ACCESSION NR: AR4045069 S/0299/64/000/011/H024/H024

SOURCE: Ref. zh. Biologiya. Svodnyy tom, Abs. 11H158

AUTHOR: Skobelkin, O. K.

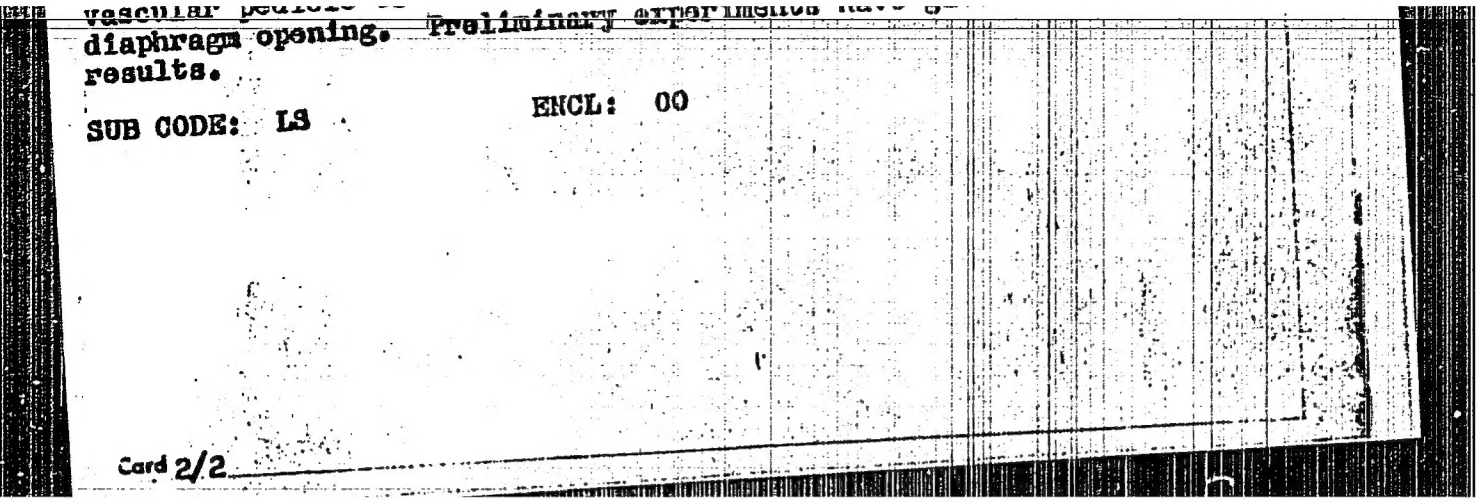
TITLE: Circular defect esophagoplasty with a stomach section on a vascular pedicle

CITED SOURCE: Sb. 3 Vses. konferentsiya po peresadke tkaney i or mov, 1963. Yerevan, 1963, 375-378

cadaver, stomach

TRANSLATION: In experiments on 10 dog cadavers and 5 live dogs it was demonstrated that it is more effective to make a stomach tube resection from the large curvature of the stomach because of its greater length and size and highly adequate number of vessels. After mobilization and spleen removal, the vascular arcade made it possible to bring the transplant into the thoracic cavity to the level of the arch of the aorta and higher. The distal end of the transplant

started 2 to 3 cm higher than the pylorus and the proximal end [illegible] the fundal part of the stomach. An incision 5 to 7 cm long [illegible] was brought into the



vascular pedicle [illegible] Preliminary experiments have [illegible]
diaphragm opening.
results.

SUB CODE: LS ENCL: 00

Card 2/2

SKOBELKIN, V.

Examination of labor disputes in the factory and plant local committee. Okhr. truda i sots. strakh. 3 no. 10:65-67 O '60. (MIRA 13:11)

1. Zaveduyushchiy yuridicheskoy konsul'tatsiyey Ul'yanovskogo oblastnogo soveta profsoyuzov.
(Ul'yanovsk Province--Grievance procedures)

SKOBELKIN, V.

Seasonal and temporary work. Okhr. truda i sots. strakh. 3 no. 12:62 D '60. (MIRA 13:12)

1. Zaveduyushchiy yuridicheskoy konsul'tatsiyey Ul'yanovskogo sovprofa.
(Labor laws and legislation)

GERSHANOV, Ye.; SKOBELKIN, V.

Commission for Labor Disputes at enterprised and inatitutions. Sots. trud 5 no.1:140-145 Ja '60. (MIRA 13:6)
(Grievance procedures)

SKOBELKIN, V.

Printing establishments are needed by Armenian industries. Prom. Arm. 4 no.5:21-24 My '61. (MIRA 14:8)
(Armenia--Printing industry)

SKOBELKIN, V.

Consulation by the Ul'yanov Province Trade-Union Council. Okhr. truda i sots. strakh. 4 no.5:53-54 My '61. (MIRA 14:5)

1. Zaveduyushchiy yuridicheskoy konsul'tatsiyey Ul'yanovskogo oblsovprofa.
(Labor laws and legislation)

SKOBELKIN, V.

Is the court right? Okhr.truda i sots.strakh. 5 no.4:42-43 Ap '62. (MIRA 15:4)

1. Zaveduyushchiy yuridicheskoy konsul'tatsiyey Ul'yanovskogo oblsovprofa.
(Maternal and infant welfare) (Employees, Dismissal of)

SKOBELKIN, V.

Visiting our friends in Azerbaijan. Prom.Arm. 5 no.6:75-76 Je '62.
(MIRA 15:7)

(Azerbaijan--Economic conditions)

SKOBELKIN, V.

Liability responsibility of the person reponsible for an industrial acciedent and illegal dismissal. Okhr.truda i sots strakh. 5 no.10:42 O '62. (MIRA 15:11)

1. Zaveduyushchiy yuridicheskoy konsul'tatsiyey Ul'yanovskogo oblastnogo soveta professional'nykh soyuzov.
(Employers' liability) (Employees, Dismissal of)

SKOBELKIN, V., kand.yuridicheskikh nauk

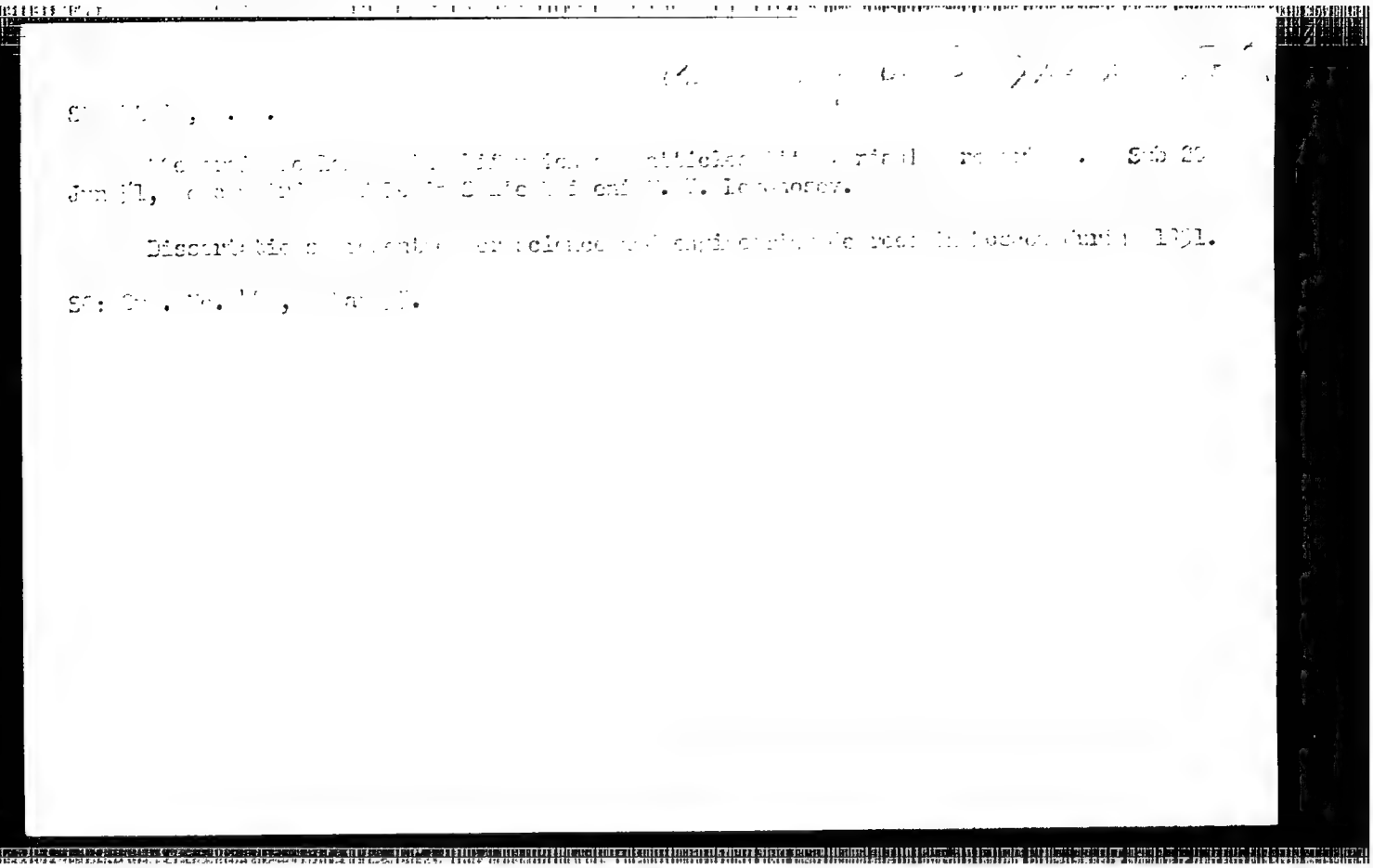
Procedure for bringing a damage suit against a defendant who caused an industrial accident. Okhr. truda i sots. strakh. 6 no.9:43-45 S '63. (MIRA 16:10)

SKOBELKIN, V. I.

and A.G. Shafigullin- authors of a-
Review & Summary of "Theory of Chain Processes" by N.S. Akulov ; State Pub. House of Tech & Theoret. Lit., Moscow, 1951.

Zhur Fiz Khim, Vol XXVII, #1, pp 151-2

W-30868, 18 Aug 54



SKOBEIKIN, V. I. Sr. Sci. Colleague

"Some Questions of Non-Linear Electrodynamics," a paper given at the All-University Scientific Conference "Lomonosov Lectures", Vest. Mosk. Un., No.8, 1953.

Trabslation U07895, 1 Mar 56

1. SKOBELKIN, V. I., SHAFIGULLIN, A. G.

2. USSR (600)

4. Akulov, Nikolai Sergeevich

7. N. S. Akulov's book "Theory of chain reactions." Reviewed by V. I. Skobelkin, A. G. Shafigullin. Zhur. fiz. khim. 27, no. 1, 1953.

9. Monthly List of Russian Accessions, Library of Congress, May 1953. Unclassified.

USSR/Physics - Vacuum pump FD-1083

Card 1/1 Pub. 153 - 19/24

Author : Skobelkin, V. I., and Yushchenkova, N. I.

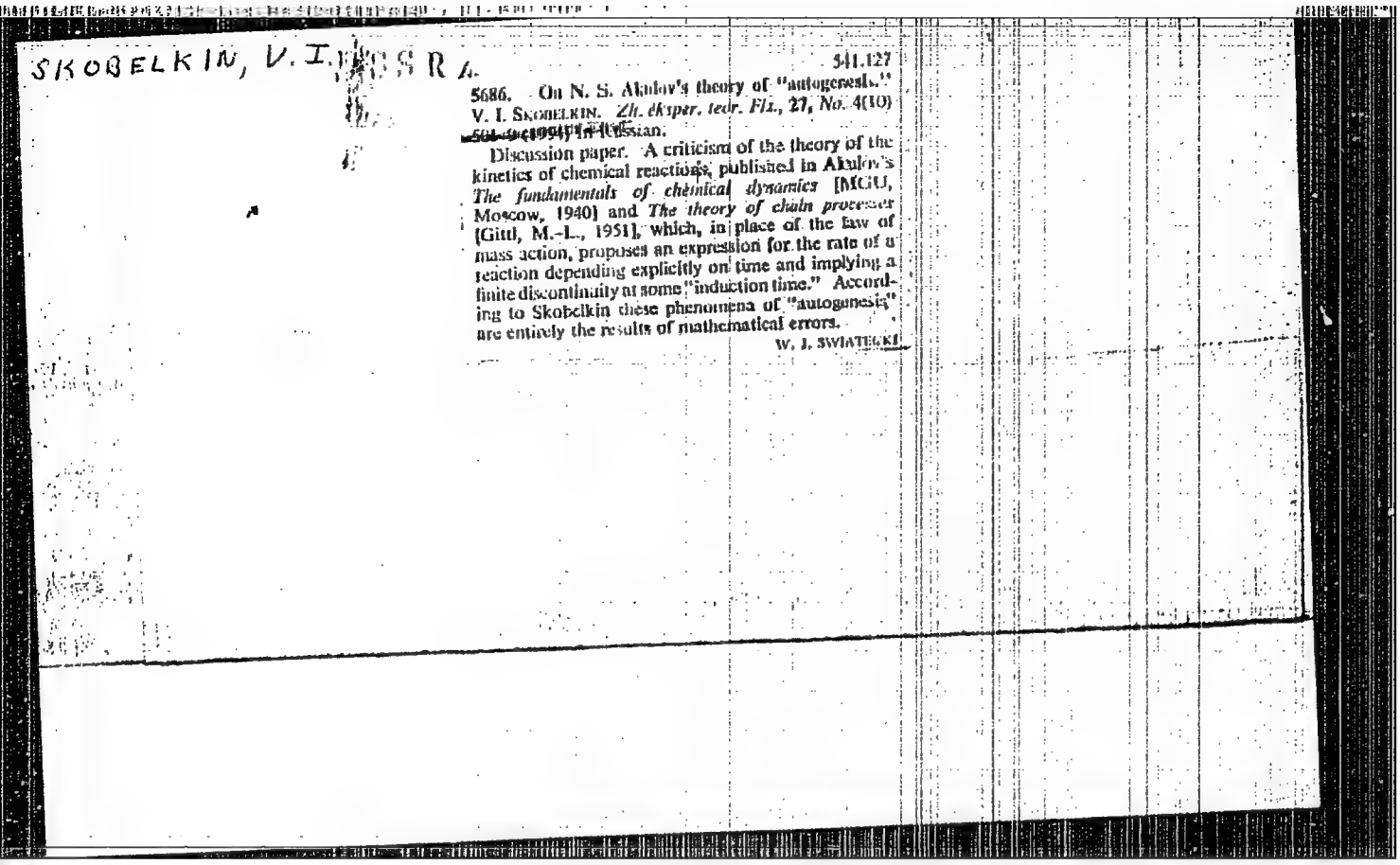
Title : Theory of the vapor-jet vacuum pump

Periodical : Zhur. tekh. fiz., 24, No 10, 1879-1891, Oct 1954

Abstract : The authors investigate the interaction between the gas to be pumped out and the supersonic vapor jet. They clarify the mechanism governing the process and thus are enabled to calculate the speed of pumping out of the gas and to determine the influence of the various parameters upon this speed. They note that their results differ from those obtained by the USSR authors Lifshits and Rozentsveyg (ibid., No 8, 1952).

Institution : -

Submitted : April 3, 1953



SKOBELKIN, V. I. USSR

541.127

5686. On N. S. Akulov's theory of "autogenesis." V. I. SKOBELKIN. *Zh. éksper. teor. Fiz.*, **27**, No. 4(10) 501–6 (1954) In Russian.

Discussion paper. A criticism of the theory of the kinetics of chemical reactions, published in Akulov's *The fundamentals of chemical dynamics* [MGU, Moscow, 1940] and *The theory of chain processes* [Gitti, M.–L., 1951], which, in place of the law of mass action, proposes an expression for the rate of a reaction depending explicitly on time and implying a finite discontinuity at some "induction time." According to Skobelkin these phenomena of "autogenesis" are entirely the results of mathematical errors.

W. J. SWIATECKI

SKOBELKIN, V. I.

530.145 62

6733. Birefringency in non-linear electrodynamics. V. I. SKOBELKIN. *Zh. eksper. teor. Fiz.*, 27, *No.* 6(12) 677–89 (1954). In Russian.

It is shown that among all the non-linear systems of electrodynamics that of Born–Infeld is the only one in which birefringency is absent in directions normal to the collinear electromagnetic fields. It is also shown that the light may, in a non-linear electrodynamics, in general be resolved into four components linearly polarized in four different planes. B. F. KRAUS

SKOBELKIN, V.I.

Variational Principles in Hydrodynamics. V. I. Skobelkin. (*Zhurnal Eksperimental'noi i Teoreticheskoi Fiziki*, Jan., 1956.) *Soviet Physics - JETP*, Feb., 1957, pp. 68-73. Translation. Formulation of new variational principles, characterized by a special variation subject to auxiliary constants, for solving hydrodynamic boundary problems by direct methods.

Category : USSR/Atomic and Molecular Physics - Gases D-7

Abs Jour : Ref Zhur - Fizika, No 1, 1957 No 932

Author : Skobelkin, V.I., Yushchenkova, N.I.
Title : Corrections to Article "Theory of Vapor-Jet Vacuum Pump."

Orig Pub : Zh. tekhn. fiziki, 1955, 25, No 2, 66

Abstract : Refers to Ref. Zhur. Fiz. 1955, 8952

Card : 1/1

USSR

538.245

8085. Magnetostatics with ferromagnetics. V. I. SKOBELKIN AND R. N. SOLOMKO. *Zh. éksper. teor. Fiz.*, 28, *No.* 4, 385-93 (1955) In Russian.

The variational principle of magnetostatics with ferromagnetics in the field of electric currents is formulated, leading to a solution of the general problem which could not be obtained by integration of Maxwell's equations owing to the non-linear relation between B and H. A system of axial symmetry is first considered, and then a planar system. The authors then derive the "complete δ-system" of functions and introduce direct methods of determining the magnetic flux. ELECTRICAL RESEARCH ASSOCIATION

SUBJECT USSR / PHYSICS
AUTHOR SKOBELKIN, V.I.
TITLE On Various Principles in Hydrodynamics
PERIODICAL Žurn.eksp.i teor.fis, 31, fasc.2, 317-323 (1956)
Issued: 5.10.1956

In the works by several authors the variation functional contained some field parameters which were then varied independently (density, velocity, pressure, and others, eg. density and stream functions). However, the number of parameters used on this occasion is not minimal. It is shown that for the construction of the functional in the general case of a threedimensional motion two defining quantities of the field (stream-functions) suffice.

The principle of the lowest flow potential: Ψ, ϑ are assumed to be the parameters for the determination of a certain streamline of a steady hydrodynamic field. An orthogonal trihedron $\bar{x}_i$ is constructed at each point of the streamline, and to each trihedron an energy-momentum-tensor T_{ik} is assigned. The quantities $\Psi(x_i)$, $\vartheta(x_i)$ of the field satisfy the relations

$\varrho V_1 = D(\Psi,\vartheta)/D(x_2,x_3)$; $\varrho V_2 = D(\Psi,\vartheta)/D(x_3,x_1)$; $\varrho V_3 = D(\Psi,\vartheta)/D(x_1,x_2)$. For the modification of the mechanic energy in a real steady field along the streamline it is then true that: $\int \partial T_{sk}/\partial \bar{x}_k \, dS = (V^2/2) + (dP/\varrho) + R(\varrho,\Psi,\vartheta) = E(\Psi,\vartheta)$. Here R is the work of friction forces per unit of measure of the liquid. The LAGRANGIAN is $L = T_{ss}$ and the integral $I = \int_{\Omega} T_{ss} \, d\omega$ must be extremal for a real stabilized

Žurn.eksp.i teor.fis,31,fasc.2,317-323 (1956) CARD 2 / 2 PA - 1537

field. Herefrom follows:
$\partial T_{ss}/\partial \Psi - (\partial/\partial x_i \partial)(\partial T_{ss}/(\partial \Psi/\partial x_i)) = 0$; $\partial T_{ss}/\partial \vartheta - (\partial/\partial x_i \partial)(\partial T_{ss}/(\partial \vartheta/\partial x_i)) = 0$.
Next follows the relativistic generalization of the principle of the smallest flow potential for a stationary field. In relativistic hydrodynamics it is true that $T_{ik} = (P+\varrho c^2)u_i u_k + P\delta_{ik}$. Here u_i is the four-velocity of the gas motion. It then applies that: $L = T_{ss} = \beta^2(P+\varrho c^2)\, V^2 + P$.
The unsteady field: The principle of the smallest action. Here three "stream functions" Ψ, ϑ, σ are introduced in the fourdimensional space-time-manifold. For an ideal gas it is true that $L = P + ((P/c^2) + \varrho u_s^2$. The variation principle consists in the fact that the integral $S = \int T_{ss}(\Psi, \vartheta, \sigma, \partial\Psi/\partial x_i, \partial\vartheta/\partial x_i, \partial\sigma/\partial x_i)\, d\Omega$ for a real field assumed a stationary value.
In conclusion the existence of a strong minimum for steady adiabatic subsonic motions of a gas is proved.

INSTITUTION: Moscow State University.

SUBJECT USSR / PHYSICS CARD 1 / 2 PA - 1218
AUTHOR SKOBELKIN, V.I.
TITLE The Principle of the Smallest Flow Potential.
PERIODICAL Dokl. Akad. Nauk, 108, 787-790 (1956)
Publ. 6 / 1956 reviewed 8 / 1956

The present work establishes and formulates a variation principle for the solution of various boundary value problems of gas dynamics by means of new and partly direct methods. The parameters Ψ and ϑ are assumed to define a certain streamline in a steady flow of a perfect gas. The surfaces Ψ = const and ϑ = const form the flow surfaces. Ψ and ϑ are chosen in such a manner that $\varrho V_x = D(\Psi,\vartheta)/D(y,z)$, $\varrho V_y = D(\Psi,\vartheta)/D(z,x)$, $\varrho V_z = D(\Psi,\vartheta)/D(x,y)$. The couple of functions (Ψ,ϑ) may be considered to be the flow functions in a threedimensional motion. The continuity equation div $\varrho \vec{V} = 0$ is satisfied identically for any Ψ,ϑ. If on a boundary surface σ the distribution of the flow (the distribution of Ψ and) and the distribution of the total mechanical energy $\mathcal{E}(\Psi,\vartheta)$ referred to units of measure of the gas are known, the BERNOULLI equation has the form $(V^2/2) + \int dP/\varrho = \mathcal{E}(\Psi,\vartheta)$. Here P is the gas pressure, and integration is carried out along the streamline. Furthermore, it applies for the energy theorem (1.principal theorem) that $dQ = dU + P\, d(1/\varrho)$. Here Q denotes the quantity of heat and U the inner energy.
If Ψ and ϑ are varied within the domain Ω (in which the motion of the gas

has no strong or slight discontinuities) while their values are maintained on the surface σ the following principle of variation applies for the motion of the gas in $\mathfrak{P}$: The integral $I = \int_{\Omega} (P+\rho V^2) d\omega$, which is equal to the work performed by the entire impulse flow of the directioned motion of gas (flow potential), assumes a steady value in the case of an actual motion of a perfect gas which has become steady.
We now introduce the geometrical characteristic of flow:
$\Theta = (D(\Psi,\mathfrak{F})/D(y,z))^2+(D(\Psi,\mathfrak{F})/D(z,x))^2+(D(\Psi,\mathfrak{F})/D(x,y))^2$ and restrict our attention to the motion which is barotropic for a given gas particle. The OSTROGRADSKIJ equations corresponding to the equation $\delta I = 0$ are given, several times transformed, and specialized for an adiabatic motion. It is shown that, in the case of adiabatic subsonic motions of the gas (which are usually vortex-like), the solution of the equations represents a sharp minimum of the functional I. Proof bases upon WEIERSTRASS function of the calculus of variations, and is followed step by step. In the case of a subsonic motion the phase surface $Z=L(\Theta,\Psi,\mathfrak{F})$ is convex, but in the case of supersonic motions without strong or slight discontinuities the phase surface has a saddle at all of its points. If boundary conditions for Ψ and $\mathfrak{F}$ on the surface σ are given, there is only one solution.

INSTITUTION: Moscow State University "M.V.LOMONOSOV"

124-11-12524D

Translation from: Referativnyy Zhurnal, Mekhanika, 1957, Nr 11, p 31 (USSR)

AUTHOR: Skobelkin, V. I.

TITLE: The Principle of the Minimal Stream Potential and its Application to Problems in Gasdynamics, Electrodynamics, and Combustion. (Printsip naimen'shego potentsiala toka i yego prilozheniya k zadacham gazovoy dinamiki, elektrodinamiki i goreniya)

ABSTRACT: Bibliographic entry of the Author's dissertation for the degree of Doctor of Physical-Mathematical Sciences, Institute of Mechanics, Academy of Sciences, USSR, Moscow, 1957.

ASSOCIATION: Institute of Mechanics, Academy of Sciences, USSR, Moscow

Card 1/1

SK[illegible]LLIH, V.L., Doc Phys-Math Sci--(diss) "Variation principles in hydrodynamics." Los, 195[illegible]. 22 pp (Acad Sci USSR. Inst of Mechanics), 200 copies. Bibliography: pp 21-22 (29 titles) (KL, 26-57,104)

AUTHORS: Kogarko, S. M., Skobelkin, V. I. SOV/20-120-6-32/59

TITLE: Relaxation Interaction Between Shock Waves and the Combustion Zone (Relaksatsionnoye vzaimodeystviye udarnykh voln s zonoy goreniya)

PERIODICAL: Doklady Akademii nauk SSSR, 1958, Vol 120, Nr 6, pp 1280 - 1283 (USSR)

ABSTRACT: The paper under review presents an investigation of the influence of the kinetics of the combustion upon the structure and the intensity of a shock wave when it passes through the combustion zone. The relaxation time t_r (the period during which no noticeable influence is exerted upon the diffusion currents and the heat currents in the reaction zone by the reaction conditions suddenly modified by the shock wave) is of the same order as the reaction period τ (10^{-3} - 10^{-5} sec). τ is defined as the ratio of the width of the combustion zone l and the normal expansion velocity of the flame. During t_r the temperature and the pressure within the reaction zone increase. During the relaxation time the excess momentum in the

Card 1/3

reaction zone is transformed into a shock wave propagating forward and backward from the reaction zone. Equations giving the state in the shock wave are written down. The whole amount of heat liberated in the passage of the shock wave is expended for the increase of the internal energy of the gas in the reaction zone. τ_b denotes the duration of the passage of the shock wave through the combustion zone. If $\tau \gg \tau_b$ the reaction is not completed during the passage of the wave through the front of the flame and only a certain proportion of the chemical energy which is expended for the increase of the momentum of the wave is imported to the wave. If $\tau \lesssim \tau_b$ the reaction is completed within the period τ. The total momentum of the shock wave after passing the combustion zone is combined from the interest momentum I and the relaxation momentum I_r. The maximum amplification of the momentum of the shock wave at $\tau = \tau_b$ may be termed momentum resonance. Finally a method for the determination of the index of refraction is presented.

Relaxation Interaction Between Shock Waves and the Combustion Zone SOV/2o-12o-6-32/59

There is 1 figure.

ASSOCIATION: Institut khimicheskoy fiziki Akademii nauk SSSR (Institute of Chemical Physics, AS USSR)

PRESENTED: March 6, 1958, by N. N. Semenov, Member, Academy of Sciences, USSR

SUBMITTED: February 25, 1958

1. Shock waves--Analysis 2. Combustion--Analysis 3. Mathematics --Applications

Card 3/3

3(4), 24(8) SOV/20-122-3-30/57

AUTHOR: Skobelkin, V. I.

TITLE: On the Thermodynamic Equilibrium of the Surfaces of a Strong Explosion (O termodinamicheskom ravnovesii poverkhnostey sil'nogo razryva)

PERIODICAL: Doklady Akademii nauk SSSR, 1958, Vol 122, Nr 3, pp 431-433 (USSR)

ABSTRACT: In hydrodynamics, the problem of the thermodynamic equilibrium appears as often as a variation principle is formulated for the description of the gas motion. The infinitely small deflections from the actual motion for given boundary and initial conditions must satisfy not only the variation equation which is equivalent to the equation of motion but also to the variation equation $\Delta Q - T\delta S = 0$. This equation is equivalent to the second law of thermodynamics for a real state of a gas in thermodynamic equilibrium. The above-given equation, therefore, limits the class of the permissible variations. This paper deals with the general case in which the gas moves in the presence of a shock wave or of a sharply defined front of reaction (which divides the initial gas from the burnt

Card 1/3

gas). The laws for the conservation of mass, momentum, and energy are given explicitly and then the Hugoniot (Gyugonio) equation is derived from them and a variation equation is given for the real subsonic flow of an ideal gas. To this variation equation, the initially given variation equation $\Delta Q - T\delta S$ has to be added. As an example, the author investigates the subsonic flow of a perfect gas in a tube in the presence of a flame front which propagates with a given velocity in an isentropic gas with a given Poisson (Puasson) constant. A figure shows the Hugoniot adiabates for the shock wave, for the detonation wave, and for a weak deflagration. According to the deliberations of this paper, the model of the motion of 2 incompressible liquids does not satisfy the equation of the thermodynamic equilibrium of the flame front. If, however, the gas moves in the presence of a shock wave, the non-equilibrium conditions in a transition layer of the order of the free length of path of the gas molecules has to be investigated for the determination of ΔQ of an elementary particle behind the shock wave. There are 1 figure and 12 references, 7 of which are Soviet.

SOV/20-122-3-30/57

On the Thermodynamic Equilibrium of the Surfaces of a Strong Explosion

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova (Moscow State University imeni M. V. Lomonosov)

PRESENTED: June 30, 1958, by S. A. Vekshinskiy, Academician

SUBMITTED: May 26, 1958

Card 3/3

5(4), 10(7) SOV/2o-122-6-25/49

AUTHORS: Kogarko, S. M., Skobelkin, V. I., Kazakov, A. N.

TITLE: The Interaction Between Shock Waves and the Front of a Flame (Vzaimodeystviye udarnykh voln s frontom plameni)

PERIODICAL: Doklady Akademii nauk SSSR, 1958, Vol 122, Nr 6, pp 1o46-1o48 (USSR)

ABSTRACT: The present paper investigates the intensification of shock waves in their interaction with thefront of a flame by variation of the normal combustion process in the shock wave. The length of the shock wave is assumed to be sufficient in the direction of the reaction zone. For the interaction between such a shock wave and the flame front the following applies: 1) The shock wave is transformed at the flame front (like on the boundary dividing two media). In this way a refracted and a reflected wave are formed. The flame front can by approximation be considered to be a contact-discontinuity. The expressions for the refraction coefficient are written down. 2) When passing through the flame front the shock wave compresses the gas in the reaction zone, whereby temperature rises. This temperature rise increases reaction velocity, so

Card 1/3

The Interaction Between Shock Waves and the Front of a Flame

that the propagation velocity of the flame is also increased. This propagation velocity increases very rapidly, and therefore this process may be looked upon as a sort of explosion in the gas current behind the shock wave; it causes the formation of 2 additional (intensifying) shock waves. The shock wave front moves with subsonic velocity in relation to the disturbed gas, and therefore any kind of disturbance is able to catch up with this front in the current behind the shock front, thus changing its structure. The propagation velocity of the flame is not increased immediately upon arrival of the shock wave, but only after a certain relaxation time. The latter is of the same order of magnitude as the duration of reaction. A diagram schematically shows the intensification of the shock wave when passing through the flame front. Expressions for shock front calculation are given. The new propagation velocity of the flame is calculated according to the theory developed by Zel'dovich. The amplitude of the intensifying shock wave depends upon the amplitude of the initial shock wave as well as on the kinetic properties (reaction velocity, calorific value, activation energy, etc.) of the fuel. The second diagram shows the amplitude of the inten-

The Interaction Between Shock Waves and the Front of a Flame

sifying shock wave of compression in the reaction zone for 2 different propagation velocities. There are 2 figures and 5 Soviet references.

ASSOCIATION: Institut khimicheskoy fiziki Akademii nauk SSSR (Institute for Chemical Physics of the Academy of Sciences, USSR)

PRESENTED: June 21, 1958, by V. N. Kondrat'yev, Academician

SUBMITTED: June 11, 1958

PHASE I BOOK EXPLOITATION SOV/3762

Konferentsiya po magnitnoy gidrodinamike. Riga, 1958.

Voprosy magnitnoy gidrodinamiki i dinamiki plazmy; trudy Konferentsii. (Problems in Magnetohydrodynamics and Plasma Dynamics; Transactions of a Conference) Riga, Izd-vo AN Latviyskoy SSR, 1959. 343 p. Errata slip inserted. 1,000 copies printed.

Sponsoring Agency: Akademiya nauk Latviyskoy SSR. Institut fiziki.

Editorial Board: D.A. Frank-Kamenetskiy, Doctor of Physics and Mathematics, Professor; A.I. Vol'dek, Doctor of Technical Sciences, Professor; I.M. Kirko, Doctor of Physics and Mathematics; V.Ya. Veldre, Candidate of Physics and Mathematics; V.G. Vitol, Candidate of Physics and Mathematics; Yu.M. Kruzin'; and V.Ya. Kravchenko.

Ed.: A. Teytel'baum; Tech. Ed.: A. Klyavinya

PURPOSE: This book is intended for physicists working in the field of magnetohydrodynamics and plasma dynamics.

COVERAGE: This volume contains the transactions of a conference held in Riga, June 1958, on problems in applied and theoretical magnetohydrodynamics. The objects of the conference were the investigation of the basic trends in theoretical and applied magnetohydrodynamics, establishing contact between the people doing research in different branches of magnetohydrodynamics, and promoting the participation of theoretical physicists in problems in applied magnetohydrodynamics. More than 160 persons from different parts of the Soviet Union took part in the conference, and 55 papers were read. Similar conferences are to be held regularly in the future; the next such conference is scheduled to be held in Riga in June 1960. In this present collection of the transactions of the conference, most of the papers and comments on papers are presented by the authors themselves in an abridged form. The book is divided into two parts: the first part deals with problems in theoretical magnetohydrodynamics and plasma dynamics, and consists of 35 articles on such aspects of the problem as the application of magnetohydrodynamics in astrophysics (D.A. Frank-Kamenetskiy), magnetohydrodynamics and the investigation of cosmic-ray variations (L.I. Dorman), acceleration of plasma in a magnetic field (G.V. Gordeyev and A.I. Gubanov), stability of shock waves and magnetohydrodynamics (A.I. Akhiyezer). The second part, consisting of 33 articles, deals with problems of experimental magnetohydrodynamics, including the application of physical simulation for investigation of electromagnetic processes in liquid metals (I.M. Kirko) and the development of electromagnetic pumps (P.G. Kirillov), at the Institute of Physics of the Academy of Sciences, Latvian SSR. Several articles are devoted to induction pumps, electromagnetic crucibles, electromagnetic stirrers for molten metals, and their application in the metallurgical industry including schematic diagrams of their power-supply systems. References are given at the end of most of the articles.

Card 6/12

24(3) SOV/20-128-2-16/59

AUTHOR: Skobelkin, V. I.

TITLE: On the Function of Magnetic Flux in a Three-dimensional Field

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 128, Nr 2, pp 280-283 (USSR)

ABSTRACT: In an article by V. I. Skobelkin and R. N. Solomko (Ref 1) a principle of variation wasformulated according to which a method was devised which permits an approximate solution of boundary problems of two-dimensional and axially symmetrical ferromagnetic systems within the current field. In both cases, the field was determined by one single function of the magnetic flux Ψ (which is similar to the method employed in hydrodynamics). In the case of two-dimensional ranges, in which magnetic permeability is constant and no currents are present, the function of magnetic flux may be regarded as the imaginary part of the complex potential (which satisfies the conditions of Riemann-Cauchy). In the general case, two everywhere steady functions ψ and ϑ of the magnetic flux are to be introduced for a description of the three-dimensional field. The latter are connected with the magnetic induction $\vec{B}$ by the relation

Card 1/4

On the Function of Magnetic Flux in a Three-dimensional Field

$\vec{B} = \nabla\psi \times \nabla\vartheta$. The planes ψ = const and ϑ = const are the planes of magnetic flux. The intersections of any two planes ψ and ϑ form force lines in the field. With the help of the functions ψ and ϑ it is possible to plot a Lagrangian for the three-dimensional field, and the variation principle formulated in the afore-mentioned previous article can be explained for the general case. For the plotting of the Lagrangian the "vector of magnetic flux" $\vec{R} = (1/2c)(\psi\nabla\vartheta - \vartheta\nabla\psi)$ and the "density of the potential function of the currents" $u = -j\vec{R}$ are introduced, where $\vec{j}$ denotes the vector of current density. If the density of magnetic energy of the field is expressed by

$w = \int_0^{B^2} \vec{H}\, d\vec{B}$, $L = w + u$ holds for the Lagrangian. The variation principle may be formulated in the following manner: Among all solenoidal fields of magnetic induction possible (when the given boundary conditions for the real field of the closed magnetostatic system are satisfied), the space integral $E = \int_\Omega L\, d\omega$ assumes the least value. The mathematical formulation of this equation is reduced to the equation $\delta E = 0$ under

On the Function of Magnetic Flux in a Three-dimensional Field

the condition div $\vec{B} = 0$, which is satisfied in a similar way if ψ and ϑ are chosen as the field-determinant quantities. L may be expressed by

$$L = -\frac{1}{2c}\vec{j}(\psi\nabla\vartheta - \vartheta\nabla\psi) + \frac{1}{4\pi}\int_0^{B^2}\frac{dB^2}{2\mu(B^2)} = L(\vec{j},\psi,\vartheta,\nabla,\psi,\nabla,\vartheta),$$

and it is possible to choose such a plane σ that $\vec{n} \times \vec{H} = 0$ holds. $\vec{n}$ denotes the normal on those planes on which the magnetic permeability μ or the current density j are unsteady. As a result, elliptical equations are obtained for the determination of ψ and ϑ as well as the pertinent natural boundary conditions. The above equations for ψ and ϑ determine the projections of the curl of magnetic field strength to the lines which are perpendicular to the surface of magnetic flux. To prove the existence of a distinct minimum of E and of the exclusion principle for the field strength $\vec{H}$, the Weierstrass function $\mathcal{E}$ of the variation problem must be constructed. The article is concluded with a discussion of the required conditions. There are 6 references, 5 of which are Soviet.

Card 3/4

SOV/20-128-2-16/59

On the Function of Magnetic Flux in a Three-dimensional Field

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova (Moscow State University imeni M. V. Lomonosov)

PRESENTED: May 18, 1959, by S. A. Vekshinskiy, Academician

SUBMITTED: May 18, 1959

Card 4/4

24(5) SOV/20-128-3-22/58

AUTHOR: Skobelkin, V. I.

TITLE: Propagation of Vector Waves in Nonlinear Mesodynamics

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 128, Nr 3, pp 514-51[illegible] (USSR)

ABSTRACT: The nonlinear mesodynamics of the scalar and pseudoscalar field was investigated in an article by D. I. Blokhintse[illegible]. The generalization of linear vectorial mesodynamics consists in an investigation of the arbitrary function $\mathcal{G} = L(\xi, \eta, \zeta) + 1$ of the three invariants $\eta = (\vec{E}\vec{B})^2$, $\xi = \frac{1}{8\pi}(E^2 - B^2)$, $\zeta = \frac{k_0^2}{8\pi}(\varphi^2 - A^2)$, (where it holds: $k_0 = 2\pi\mu c/\hbar$) instead of the Lagrangian $L = \xi + \zeta + 1$ (where 1 denotes the invariant part of the Lagrangian, which determines the interaction of the meson field with the nucleons). The equations of the nonlinear meson field may be ascertained from the variational method $\delta \int \mathcal{G}\, \mathrm{div} = 0$. They have the form

$$\mathrm{curl}\,\vec{H} - \frac{1}{c}\frac{\partial\vec{D}}{\partial t} + k_0^2 A^* = 4\pi\vec{j}, \quad \mathrm{curl}\,\vec{E} + \frac{1}{c}\frac{\partial\vec{B}}{\partial t} = 0, \quad \vec{E} = -\frac{1}{c}\frac{\partial\vec{A}}{\partial t} - \nabla\varphi,$$

$$\mathrm{div}\,\vec{D} + k_0^2\varphi^* = 4\pi\varrho, \quad \mathrm{div}\,\vec{B} = 0, \quad \vec{B} = \mathrm{curl}\,\vec{A}, \quad \vec{D} = 4\pi\frac{\partial\mathcal{G}}{\partial\vec{E}} = \frac{\partial L}{\partial\xi}\vec{E} +$$

Card 1/4

$$+ 8\pi(\vec{E}\,\vec{B})\,\frac{\partial L}{\partial \eta}\,\vec{B} + 4\pi\,\frac{\partial l}{\partial \vec{E}},\quad \vec{H} = -4\pi\,\frac{\partial \varphi}{\partial \vec{B}} = \frac{\partial L}{\partial \xi}\,\vec{B} + 8\pi(\vec{E}\,\vec{B})\,\frac{\partial L}{\partial \eta}\,\vec{E} -$$

$$- 4\pi\,\frac{\partial l}{\partial \vec{B}},\quad \vec{A}^{*} = \frac{\partial L}{\partial \xi}\,\vec{A},\quad \varphi^{*} = \frac{\partial L}{\partial \xi}\,\varphi,\quad \vec{j} = \frac{\partial l}{\partial \vec{A}}.$$

The totality $\vec{j}$, iQ (where Q denotes the density of distribution of the electrons) forms a four-dimensional current which satisfies the equation of continuity $\frac{\partial Q}{\partial t} + \operatorname{div}\vec{j} = 0$.

The velocity of propagation of the small disturbations of the meson field may be calculated by the method of characteristics (e.g. by the method of weak unsteadinesses by Levi-Civita (Ref 3), or by the method of wave equations (Ref 4)). All these methods are adequate and deliver the same formulas for the velocity of propagation of the disturbances. The following expression is obtained from the above set of equations:

$c\lambda_{\vec{H}} \times \vec{n} + \lambda_{\vec{D}} v = 0$, $c\lambda_{\vec{E}} \times \vec{n} - \lambda_{\vec{B}} v = 0$, where it holds:

$$\lambda_{\vec{B}} v = -\left[\frac{\partial \vec{B}}{\partial t}\right],\quad \lambda_{\vec{D}} v = -\left[\frac{\partial \vec{D}}{\partial t}\right],\quad \lambda_{\vec{H}}\vec{n} = \left[\nabla \vec{H}\right],\quad \lambda_{\vec{E}}\vec{n} = \left[\Delta \vec{E}\right].$$

The vectors $\lambda_{\vec{H}}$, $\lambda_{\vec{E}}$, $\lambda_{\vec{B}}$, $\lambda_{\vec{D}}$ are the vectors with the components λ_{H_x}, λ_{H_y}, λ_{H_z}, etc, and $\vec{n}$ denotes the unit vector perpendicu-

lar to the surface of weak unsteadiness. Further, the following relations are obtained: $\lambda_D \vec{n} = \lambda_B \vec{n} = 0$, $\lambda_A \times \vec{n} = 0$, and

$$-\lambda_D v = \left[\frac{\partial}{\partial t}\left\{\frac{\partial L}{\partial \xi}\vec{E} + 8\pi(\vec{E}\,\vec{B})\,\frac{\partial L}{\partial \eta}\vec{B}\right\}\right]$$

$$-\lambda_H v = \left[\frac{\partial}{\partial t}\left\{\frac{\partial L}{\partial \xi}\vec{B} + 8\pi(\vec{E}\,\vec{B})\,\frac{\partial L}{\partial \eta}\vec{E}\right\}\right].$$

The determinant of this set is equal to zero, which leads to an algebraic equation of fourth order with respect to v. The only nonlinear mesodynamics which does not exhibit double refraction or polarization of vector waves in the directions perpendicular to the collinear fields $\vec{E}$ and $\vec{H}$ has the form

$L = \frac{C}{4\pi}\left(1 - \sqrt{1 - \frac{8\pi\xi}{D} - \frac{\eta}{C^2}}\right) + C_1$, where C and C_1 in general are functions of ξ. Hence, experimental investigation of the polarization of vectorial meson waves may indicate the physical reality of the electrodynamics and mesodynamics of Bonn-Infeld. If the mass and charge of the meson are known, the actual field radius and the maximum field strength may be determined in this nonlinear mesodynamics. There are 5 Soviet references.

Propagation of Vector Waves in Nonlinear Mesodynamics. SOV/2o-128-3-22/58

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova
(Moscow State University imeni M. V. Lomonosov)

PRESENTED: May 18, 1959, by S. A. Vekshinskiy, Academician

SUBMITTED: May 18, 1959

Card 4/4

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65607

S/020/60/130/05/016/061
B013/B014

AUTHOR: Skobelkin, V. I.

TITLE: Variational Principles of the Determination of the Principal Characteristics of a Ferromagnetic Body on the Basis of the Calculation of Its Hysteresis Loop

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol 130, Nr 5, pp 1012-1014 (USSR)

ABSTRACT: The theory discussed in the present paper permits a quantitative calculation of the configuration of the whole hysteresis loop. Furthermore, it connects the properties (constants) of the ferromagnetic body with the shape of this hysteresis loop. In the case of irreversible magnetization the entropy S of a ferromagnetic body varies, so that the process of magnetization is to be described by the use of the second law of thermodynamics. The existence of magnetostrictive phenomena in a ferromagnetic body changes its surface σ so that in this case an improper problem of variation (with variable limits) is obtained. Here, the field is assumed to be determined by the Cartesian coordinates Y, Z. x, ψ, ϑ are chosen as independent coordinates. In this case, the variational equation of the

Card 1/5

66607

S/020/60/130/05/016/061
B013/B014

Variational Principles of the Determination of the Principal Characteristics of a Ferromagnetic Body on the Basis of the Calculation of Its Hysteresis Loop

field reads $\Delta(Y,Z)=\delta E^* + \int_{\omega} \Pi\, \delta S\, d\omega - \int_{l} L^* \frac{D(Y,Z)}{D(\psi,\vartheta)}\, \delta(\psi\vartheta)dx = 0.$

l denotes the boundary of the surface σ, $L^* = w + u - \int_0^{\vec{B}(\sigma)} \vec{B}\, d\vec{H}$ the generalized Lagrangian of the field, and it holds that $\Pi = -\partial L^*/\partial S$. $\int_0^{\vec{B}(\sigma)} \vec{B}\, d\vec{H}$ is equal to the magnetic pressure acting upon the surface σ of the ferromagnetic body. δE^* denotes the complete variation in consideration of the variation in entropy and in the magnetic induction flux on the surface σ. The above equation is satisfied with any surface σ irrespective of its variation during magnetization. The variation in σ is to be considered by introducing an additional condition inferred from the second law of thermodynamics. The entropy variation

Card 2/5

S/020/60/130/03/016/061
B013/B014

Variational Principles of the Determination of the Principal Characteristics of a Ferromagnetic Body on the Basis of the Calculation of Its Hysteresis Loop

entering into the above equation must vanish for a true state. The infinitely small deviations from the true state may be regarded as possible non-equilibrium states of the ferromagnetic body. With $\delta S = 0$, the positive magnetic flux Φ^+ through the surface σ has a maximum. It further holds that $\Phi^+ = \int_\sigma \vec{B}\vec{n}\varepsilon d\sigma$, with $\varepsilon = 1$ for $\vec{B}\vec{n} \neq 0$ and with $\varepsilon = 0$ for $\vec{B}\vec{n} < 0$. In the general case, the thermodynamic potential of the unit of volume of a ferromagnetic body reads $\bar{\varphi} = \varphi_0(M) + \mathcal{E}_{an} - \vec{H}\vec{M} - \frac{H^2}{8\pi} + \mathcal{E}_{mel} - \mathcal{E}_{el}$. $\vec{H}$ denotes magnetic field strength within the ferromagnetic body, $\vec{M}$ the magnetization of the unit of volume, $\mathcal{E}_{an}$ anisotropy energy, $\mathcal{E}_{el}$ elastic energy, and $\mathcal{E}_{mel}$ magnetoelastic energy. $\mathcal{E}_{an}$ is explicitly written down for uniaxial and cubic crystals. If Φ^+ is assumed to be a maximum, it holds

Card 3/5

68307

S/020/60/130/05/016/061
B013/B014

Variational Principles of the Determination of the Principal Characteristics of a Ferromagnetic Body on the Basis of the Calculation of Its Hysteresis Loop

that $\delta \int_{\sigma^+} (\vec{H} + 4\pi\vec{M})\, \vec{n}\, d\sigma^+ = 0$ with the auxiliary conditions $u_{ik} = -\left(\frac{\partial \bar{\varphi}}{\partial \sigma_{ik}}\right)_{T,H}$, u_{ik} denotes the deformation tensor of the ferromagnetic body. With $\vec{M} = \vec{M}_0 + \vec{m}$ (where $\vec{M}_0$ is the magnetization determined by the initial magnetization curve, and $\vec{m}$ the deviation of magnetization in the inverse process as a result of hysteresis), it follows from the equation $\delta S = 0$ that either $dS/d\Phi^+ = 0$ (initial magnetization curve) or $\delta\Phi^+ = 0$ (metastable states corresponding to hysteresis). The hysteresis curve obtained corresponds to the metastable states possible within the range of irreversible magnetization. The conditions for adiabatic insulation of the system are satisfied. There are 5 Soviet references.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova (Moscow State University imeni M. V. Lomonosov)

Card 4/5

[illegible]
S/[illegible] 57/032/003/012/[illegible]
B111/B102

41730[illegible]

[illegible], V. I.

AUTHOR: [illegible] of relaxation oscillations during combustion in a [illegible]

TITLE: [illegible]

PERIODICAL: Zhurnal tekhnicheskoy fiziki, v. [illegible], no. 3, 1962, [illegible] - 355

TEXT: The problem of onedimensional unsteady combustion of fuels in the [illegible] and the formation of pressure oscillations is solved theoretically. [illegible] is discussed of the relaxation interaction of weak disturbances [illegible] compression waves that are displaced) with the combustion zone. (Similar [illegible] effect of these waves [illegible] art of the heat generated is retained in the combustion zone and not carried along by the flow. This causes a [illegible] increase in pressure and temperature that can be described by a factor r which depends mainly on the length of the chamber, on the place of combustion in the chamber, and on ω_0, the resonant frequency of the [illegible] columns, 1 and 2, near the place of combustion (1- "cold gas", 2-heated [illegible]). r has a minimum at the wave loops and is finite at the nodes. If the place of combustion is at a wave loop new waves are emitted, which is [illegible]

Theory of relaxation ...

not the case at a node. The initial equation is a differential equation for the deviation of pressure P' from the equilibrium value which had been derived by V. I. Shchelkin (Ref. 3: ZhETF, 36, no. 9, 1961) (The equation only holds on the assumption that the wavelength of the disturbance is much lower than the width of the combustion zone). For P_i' the following formulation is given:

$$P_i' = f_i\left(t + \frac{x_i}{a_i}\right) + F_i\left(t - \frac{x_i}{a_i}\right),$$

where i = 1 refers to the "cold gas", i = 2 to the heated gas. The boundary conditions are: $f_i(t) = (-1)^{\nu_i} F_i(t)$, where $\nu_i = 0$ corresponds to a closed chamber, and $\nu_i = 1$ to an open one. The differential equation is solved with $P_i = C_i^* e^{kt}\left\{e^{kx/a_i}\cos\omega\left(\frac{x_i}{a_i} + t + \alpha_i\right) + (-1)^{\nu_i}\cos\omega\left(-\frac{x_i}{a_i} + t + \alpha_i\right)\right\}$,

where C_i, α_i are arbitrary real quantities, and a is the velocity of sound. The attenuation factor k and the frequency ω satisfy complex transcendental equations. The general solution is obtained by superposition of various

Card 2/4

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B111/B102

Theory of vibration ...

frequencies ω_n. With consideration of absorption in the chamber the somewhat modified expression

$$P_i' = e^{-\gamma_{in}t} C_{1n}^{*} e^{(k_n - \gamma_{in} a_i)t} \left\{ e^{\frac{k_n x_i}{a_i}} \cos \omega_n \left(\frac{x_i}{a_i} + t + a_{in} \right) + (-1)^{\nu_i} e^{-\frac{k_n x_i}{a_i}} \cos \omega_n \left(-\frac{x_i}{a_i} + t + a_{in} \right) \right\}. \quad (16)$$

follows for P_i', where γ_i is the absorption coefficient (i = 1,2). It follows from (16) that the oscillation becomes unsteady when $k_n - b_n > 0$, and that it is attenuated when $k_n - b_n < 0$. The general absorption coefficient is $b = \gamma a = A_1 \omega^2 + A_2 \omega^{1/2}$, where A_1 and A_2 are coefficients depending on the physical and chemical parameters of the fuel mixture. $k_1 - b_1 = 0$ has two roots, the so-called critical frequencies ω_1' and ω_2. With the chamber length L' corresponding to ω_1', the combustion is absolutely steady for all chambers with L ≦ L'; for L ≈ L", however, it is only relatively steady, i. e. only for certain harmonics. For L ≫ L" the intensi-

Card 3/4

ty of the ultrasonic oscillations is reduced considerably. A complete elimination of the oscillations is, however, not attained. There are 9 references: 7 Soviet and 2 non-Soviet. The reference to the English-language publication reads as follows: M. Zucrow, J. Osborn. Jet Propulsion, 28, no. 10, 674 - 679, 1958.

ASSOCIATION: Institut khimicheskoy fiziki AN SSSR (Institute of Chemical Physics, AS USSR)

SUBMITTED: February 20, 1961 (initially) May 18, 1961 (after revision)

Card 4/4

of the mixture; w = velocity rate of the reaction; z = effective width of the combustion zone; p = pressure; $\mathcal{E}$ = activation energy; t_r = relaxation time; index 1 refers to unburnt, and index 2 to burnt gas. The result also holds qualitatively for liquid or solid fuels with combustion in the gaseous phase. The relaxation may cause combustion instability in rocket propulsion. The present theory refers to ideal gas, taking no account of the absorption of waves through heat conduction, viscosity, and relaxation processes in the combustion zone. Wave absorption may be important in high frequency oscillations and will be specially examined.

ASSOCIATION: Akademiya nauk SSSR, Institut khimicheskoy fiziki (Academy of Sciences USSR, Institute of Chemical Physics)

SUBMITTED: February 20, 1961

SKOBELKIN, V.I.; BOLDIN, A.A.

Functions of the distribution of concentrations within the cell. Dokl.AN SSSR 145 no.6:1396-1399 Ag '62. (MIRA 15:8)

1. Institut khimicheskoy fiziki AN SSSR. Predstavleno akademikom V.N.Kondrat'yevym.

(CELLS)

SKOBELKIN, V.N., red.; BADEYAN, A., tekhn. red.

[Dairy industry of the Armenian S.S.R. during the last forty years] Molochnaia promyshlennost' Armianskoi SSR za 40 let. Erevan, Armianskaia SSR. Sovet narodnogo khoziaistva, 1961. 17 p. (MIRA 16:11)

1. Erivan. Vystavka dostizheniy narodnogo khozyaystva Armyanskoy SSR.
(Armenia—Dairy industry)

GINDINA, M.M.; KOGANOVA, G.V.; LARICHEVA, G.M.; MELKOVA, A.Ye.; POLYAKOVA, M.G.; SKOBELKINA, I.F.; IKONNIKOV, V.V., prof. otvetstvennyy red. ROSHCHINA, L., red.izd-va; LEBEDEV, A., tekhn.red.

[State Bank of the U.S.S.R.; a brief account on the fortieth anniversary of the October Revolution] Gosudarstvennyi bank SSSR; kratkii ocherk k sorokaletiiu Oktiabria. Moskva, Gosfinizdat, 1957. 254 p. (MIRA 11:2)

1. Gosudarstvennyy bank, Moscow.
(Banks and banking)

USSR/Optics - Photometry, Colorimetry, and Illumination Engineering, K-10

Abst Journal: Referat Zhur - Fizika, No 12, 1956, 35944

Author: Ryabov, I. I., Skobelev, V. M.

Institution: None

Title: New Starting-Regulating Apparatus for Luminescent Lamps

Original Periodical: Svetotekhnika, 1956, No 1, 22-23

Abstract: None

Card 1/1

BOKUCHAVA, M.A.; SKOBELEVA, N.I.

Study of volatile aldehydes of the tea plant. Dokl. AN SSSR 112 no.5:896-898 F '57. (MLRA 10:4)

1. Institut biokhimii im. A.N. Bakha Akademii nauk SSSR. Predstavleno akademikom A.I. Oparinym.
(Tea) (Aldehydes)

SKOBELSKAYA I.B.

7422. SKOBELSKAJA I. B. Inst. of Exp. Endocrinol., USSR. *The cortical regulation of the thyrotropic function of the hypophysis and the thyroid gland (Russian text) PROBLEMS ENDOCR. HORMONOTHERAPY 1955, 1/2 (9-15) Tables 2 Illus. 2

The author succeeded in developing conditioned reflexes in male rats in response to the decrease and increase of the thyrotropic function of the hypophysis and the ensuing changes in the functional state of the thyroid gland. He achieved this by combining the administration of tyroxin or methyl-thiouracil with a complexity of irritants (the setting of the experiment, the mode of the administration of tyroxin or methyl-thiouracil, light). That the reflexes were conditioned has been confirmed by their extinction after the reinforcement by absolute irritants has been withdrawn. The results obtained are regarded as a proof that the function of the hypophysis is regulated by the cerebral cortex.

Tendler - Leningrad (III 6)

PAVLOV, Ye.; SKOBEL'SKAYA, Yu.; SAKHATSKAYA, T.

Symposium on the formation of endocrine functions in ontogeny.
Usp. sovr. biol. 60 no.2:316-319 S-O '65. (MIRA 18:10)

SHCHEL'SHIY, N. P.

"Comparative Study of Cytological Differentiation in the Blood Elements of Certain Vertebrates." Thesis for degree of Cand. Biological Sci. Sub 5 Jun 50, Moscow City Pedagogical Inst imeni V. P. Potemkin

Summary 71, 4 Sep 52, Dissertations Presented for Degrees in Science and Engineering in Moscow in 1950. From Vechernyaya Moskva, Jan-Dec 1950.

[redacted], L. [redacted].

"[redacted] in the Plasma," In symposium on Extracellular Forms of Life, (Acad. Med. Sci. R.S.F.S.R., Moscow, 1952), pp. 195-197.

SKOBEL'SKIY, M.D.

Development of vaccinia virus outside of the organism. Biul. eksp. biol. i med. 38 no.11:66-70 N '54. (MLRA 8:1)

1. Iz Instituta virusologii imeni D.I.Ivanovskogo (dir. deystvitel'nyy chlen AMN SSSR prof. M.P.Chumakov) AMN SSSR, Moskva.

(VACCINIA, virus,
develop. outside of organism)
(VIRUSES,
vaccinia virus, develop. outside of organism)

SKOBEL'SKIY, M.D.

Possibilities of light optics applicable to the study of virus particles. Biofizika 1 no.4:379-382 '56. (MIRA 9:9)

1. Institut virusologii imeni D.I.Ivanovskogo AMN SSSR, Moskva.
(MICROSCOPY) (VIRUS RESEARCH)

E-3

USSR/Virology - Human and Animal Viruses

Abs Jour : Referat Zhurn - Biol. No 16, 25 Aug 1957, 68242

Author : Skobelskiy, M.D., Avakyan, A.A., Burak, A.I.
Title : Use of the Luminescent Method of Microscopy for Perfecting of Laboratory Diagnosis of Poliomyelitis.

Orig Pub : Vopr. Virusologiy, 1956, No 6, 58.

Abstract : Hela(?) cells were cultured on cover glasses, filtrated, treated with acridine yellow (1:1000) and studied through a luminescent microscope. Regardless of the age of the culture, the protoplasm luminesced by a dull-green light, surrounding the far more luminous nucleus and small nuclei. Six hours after infection of the poliomyelite by the virus, thin sprouts of cells began to manifest orange-yellow illumination, which further enveloped adjacent portions of the protoplasm spreading from the periphery of the cell toward the nucleus. On the second day after the infection of the protoplasm, the nucleus

- 10 -

Card 1/2

Abs Jour : Referat Zhurn - Biol. No 16, 25 Aug 1957, 68242

also began to luminesce with a flaming-yellow light. This luminescence did not arise when the specific immunizing serum was introduced into the culture together with the virus.

SKOBEL'SKIY, M.D.; BURAK, A.I.

Method of arranging tissue culture for morphological analysis.
Vop. virus 5 no.4:494-496 Je-Ag '60. (MIRA 14:1)

1. Institut virusologii imeni D.I.Ivanovskogo AMN SSSR, Moskva.
(TISSUE CULTURE)

KHONDKARIAN, O.A.; SKOBEL'SKIY, M.D.; KHVAN, L.M.; BURAK, A.I.

Clinical aspects and etiology of acute serous meningitis. Vest. AMN SSSR 17 no.7:13-17 '62. (MIRA 15:10)

1. Institut nevrologii AMN SSSR.
(MENINGITIS) (VIRUS DISEASES)

KHONDKARIAN, O.A.; SKOBELITSKIY, M.P.; KHVAN L.M., BURAK, A.I.

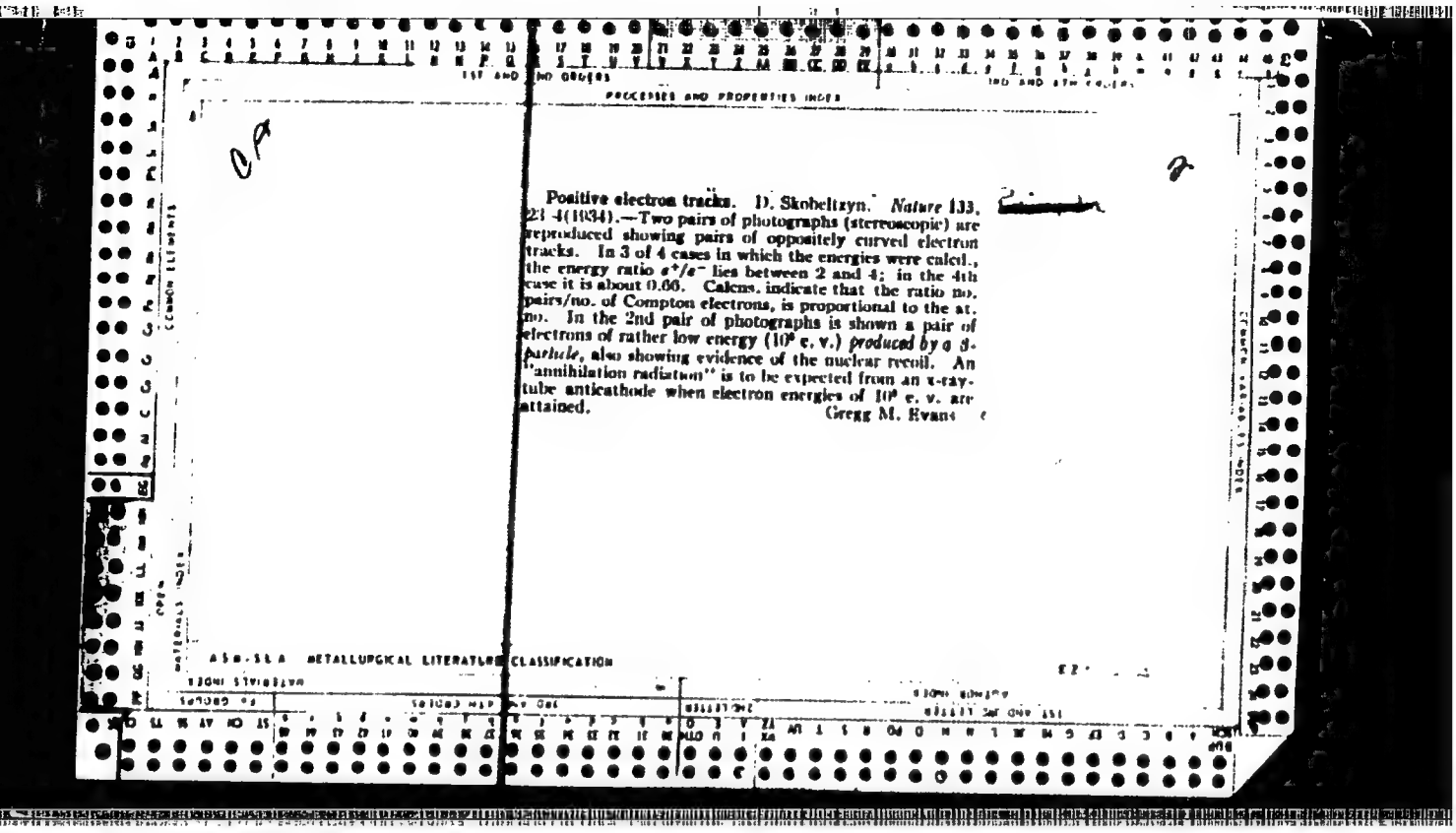
Clinical and etiological aspects of polyseasonal meningoencephalitis.
Vest. AMN SSSR 19 no.6:35-42 '64. (MIRA 18:4)

1. Institut nevrologii AMN SSSR, Moskva.

MITKALINNYY, V.I., kand.tekhn.nauk; MOLCHANOV, N.G., kand.tekhn.nauk;
Prinimali uchastiye: NEVEDOMSKAYA, I.N.; SHKOL'NIKOV, Yu.M.;
VOLVENKIN, V.K.; RAYSKIY, R.N.; BELEN'KIY, A.M.; SKOBEL'TSIN,
S.S.; FEY GZHU-MIN; CHAHAO TIN'-YUAN'

Improvement of bell-type furnaces for bright annealing. Stal'
22 no.4:365-367 Ap '62. (MIRA 15:5)

1. Moskovskiy institut stali.
(Furnaces, Heat-treating) (Annealing of metals)

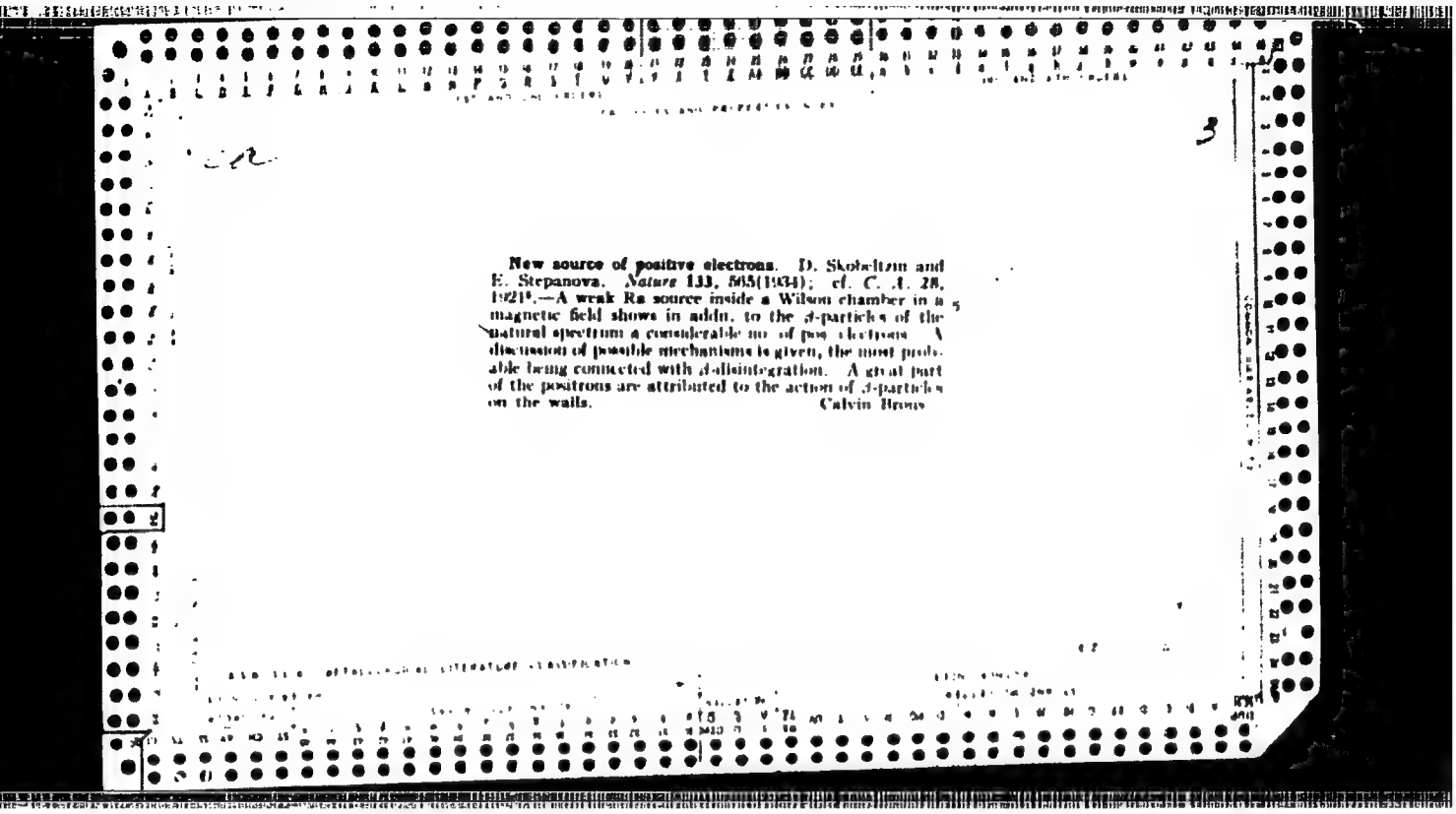


PROCESSES AND PROPERTIES INDEX

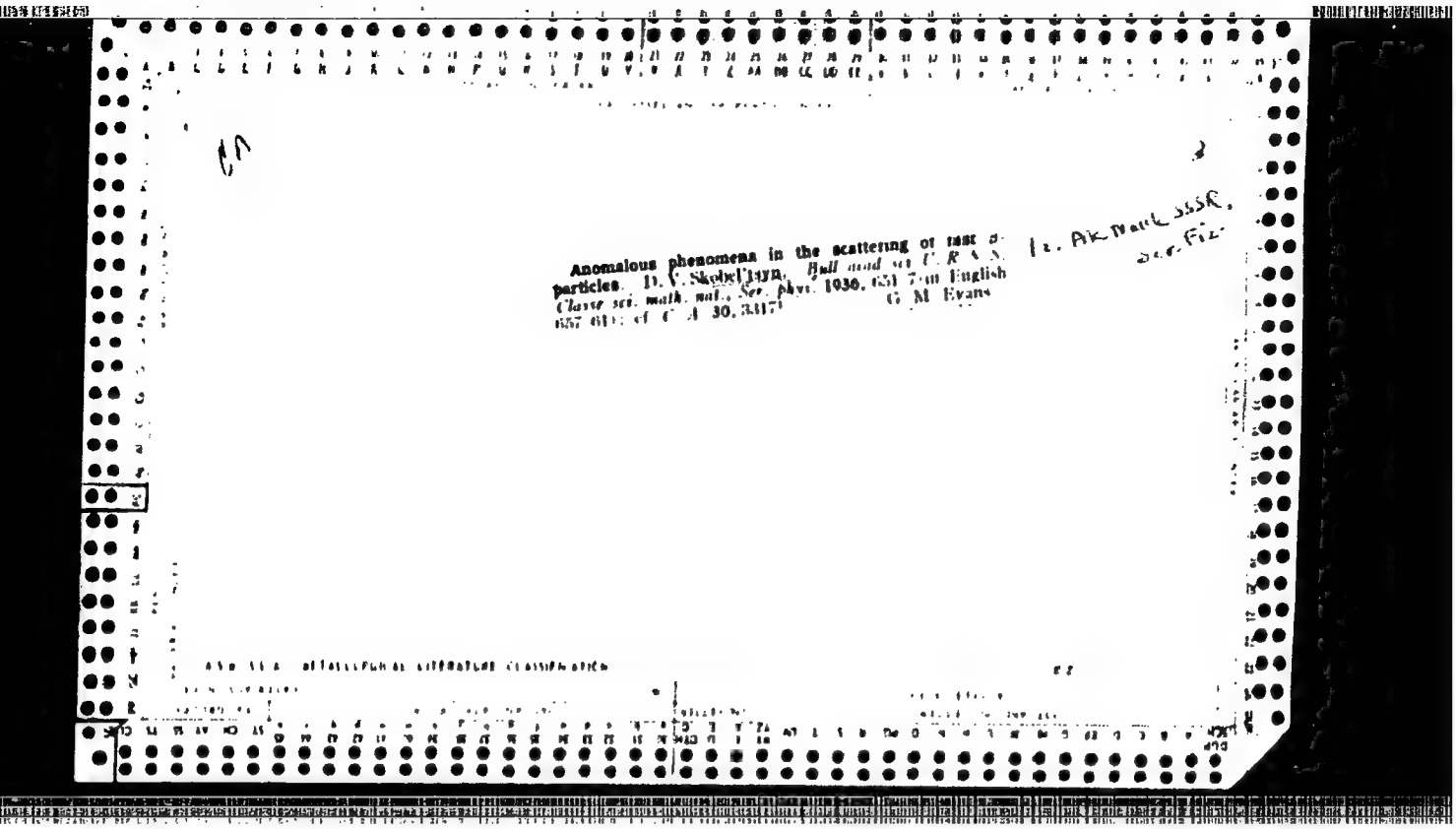
Positive electron tracks. D. Skobeltzyn. *Nature* 133, 233–4(1934).—Two pairs of photographs (stereoscopic) are reproduced showing pairs of oppositely curved electron tracks. In 3 of 4 cases in which the energies were calcd., the energy ratio ϵ^+/ϵ^- lies between 2 and 4; in the 4th case it is about 0.66. Calcns. indicate that the ratio no. pairs/no. of Compton electrons, is proportional to the at. no. In the 2nd pair of photographs is shown a pair of electrons of rather low energy (10^6 e. v.) *produced by a β-particle*, also showing evidence of the nuclear recoil. An "annihilation radiation" is to be expected from an x-ray-tube anticathode when electron energies of 10^6 e. v. are attained.

Gregg M. Evans

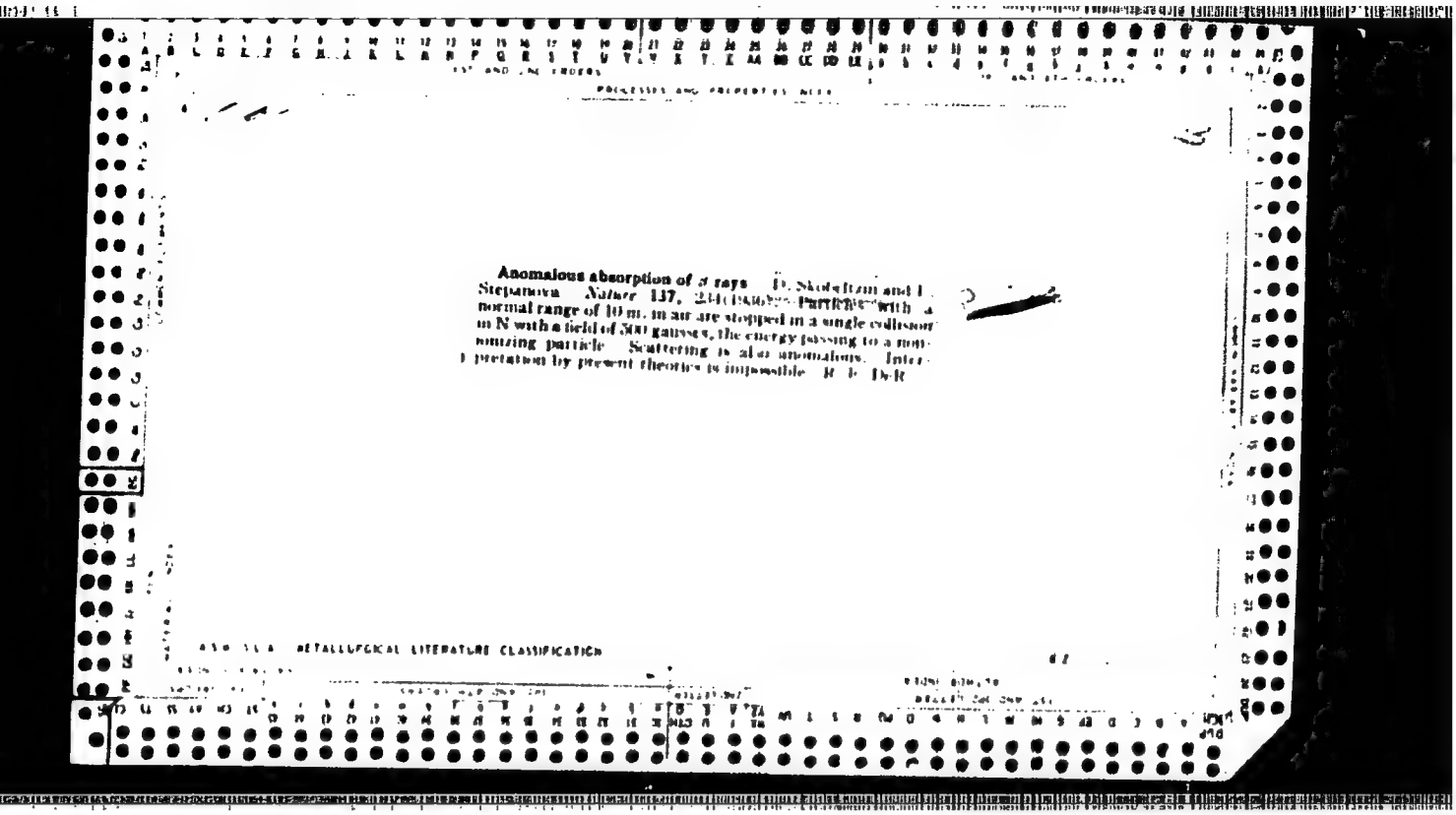
ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



New source of positive electrons. D. Skobeltzin and E. Stepanova. *Nature* 133, 565(1934); cf. *C. A.* 28, 1921⁹.—A weak Ra source inside a Wilson chamber in a magnetic field shows in addn. to the β-particles of the natural spectrum a considerable no. of pos. electrons. A discussion of possible mechanisms is given, the most probable being connected with β-disintegration. A great part of the positrons are attributed to the action of γ-particles on the walls. Calvin Brow

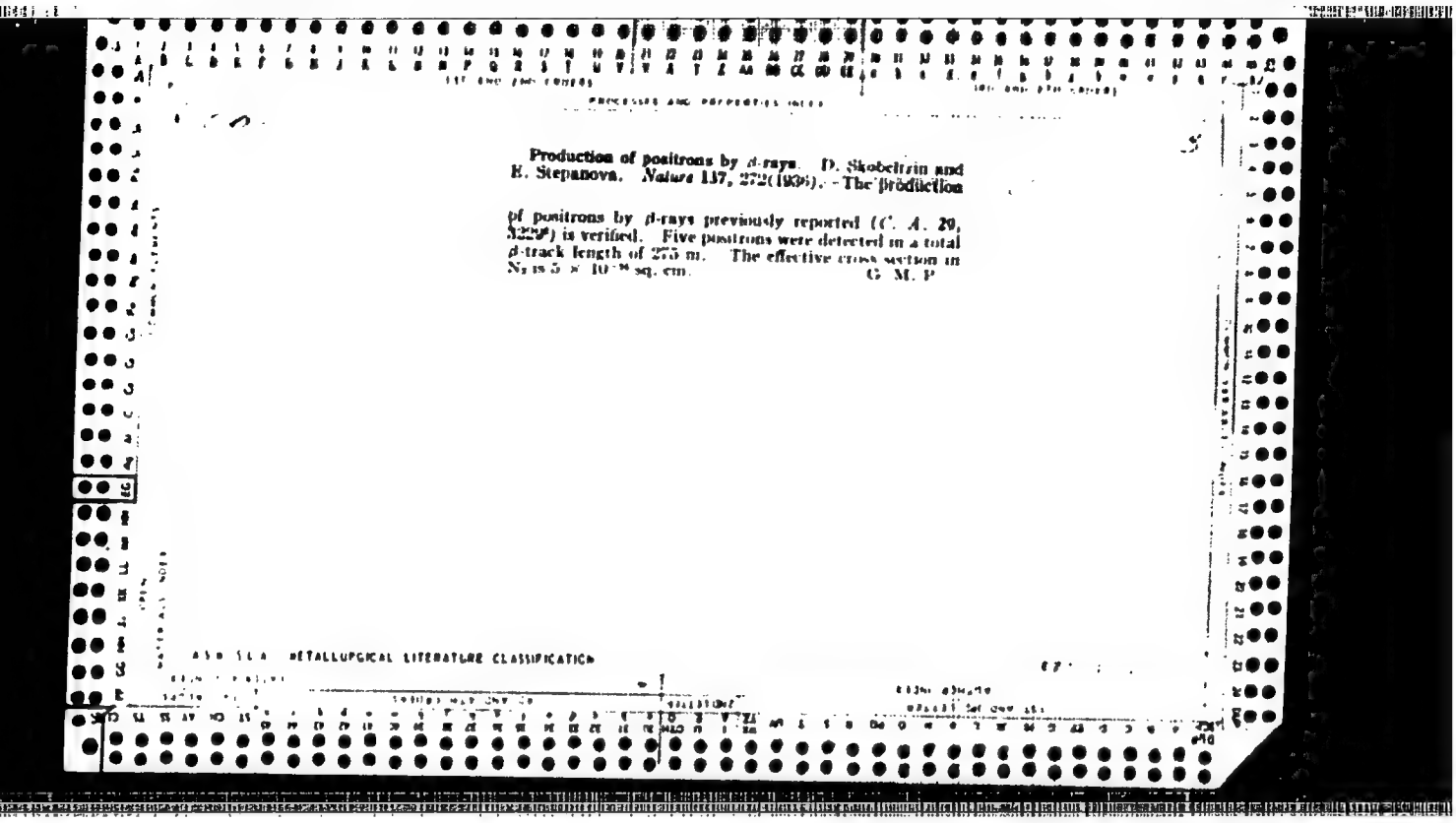


Anomalous phenomena in the scattering of fast α-particles. D. V. Skobel'tsyn. *Bull. acad. sci. URSS, Classe sci. math. nat., Sér. phys.* 1939, 651-7 (in English)
G. M. Evans



Anomalous absorption of β rays D. Skobeltzin and I. Stepanova *Nature* 137, 244(1936). Particles with a normal range of 10 m. in air are stopped in a single collision in N with a field of 300 gausses, the energy passing to a recoiling particle. Scattering is also anomalous. Interpretation by present theories is impossible. R. F. Dr.R.

METALLURGICAL LITERATURE CLASSIFICATION



Production of positrons by δ-rays. D. Skobeltzin and E. Stepanova. *Nature* 137, 272(1936). – The production of positrons by δ-rays previously reported (*C. A.* 29, 3229[8]) is verified. Five positrons were detected in a total δ-track length of 255 m. The effective cross section in N_2 is 5×10^{-26} sq. cm. G. M. P

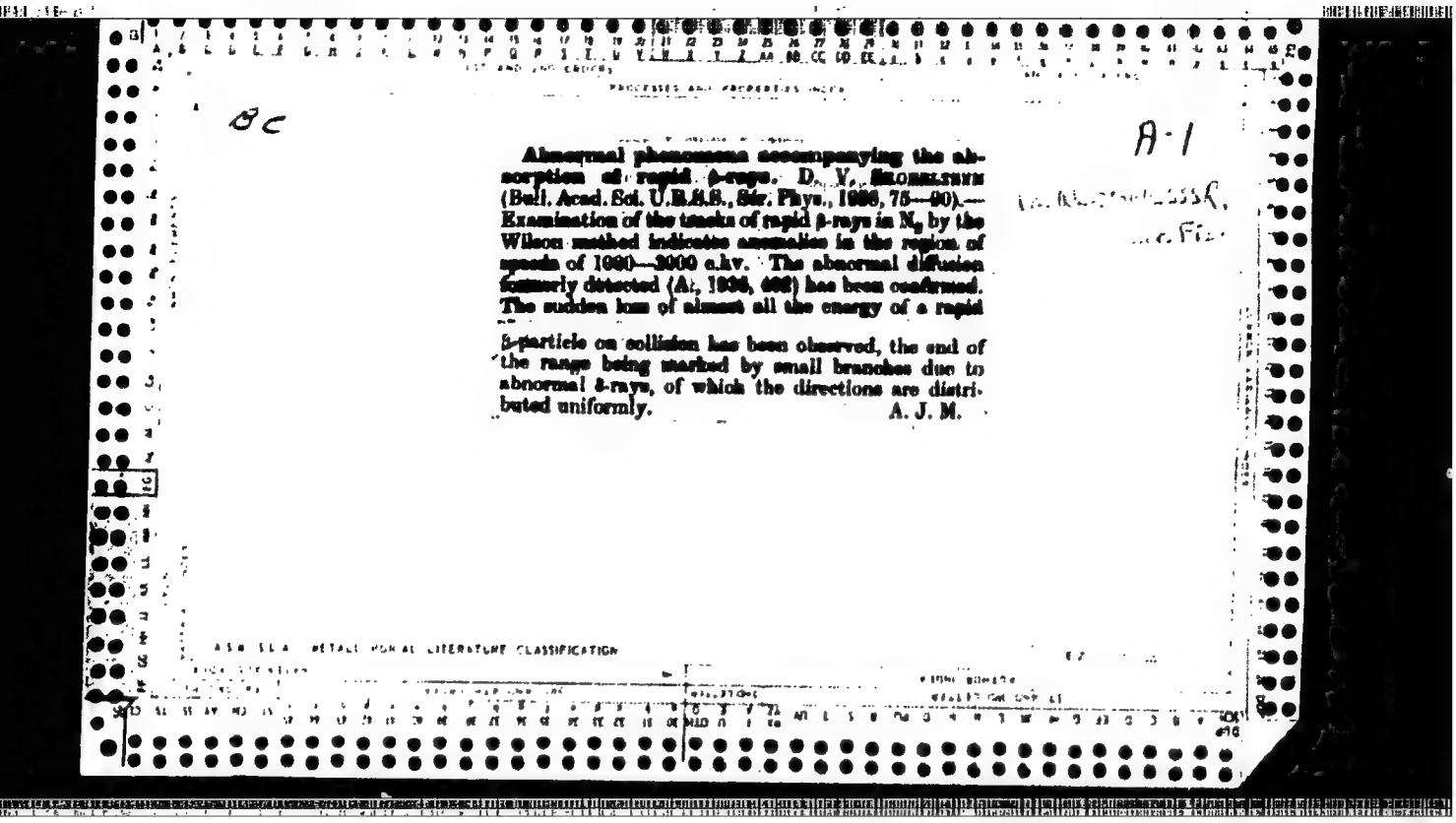
A.S.T.M. METALLURGICAL LITERATURE CLASSIFICATION

PROCESSES AND PROPERTIES INDEX

The normal and the anomalous δ rays. D. V. Skobel'tsyn. *Bull. acad. sci. U. R. S. S., Classe sci. math. nat., Sér. phys.* **1938**, No. 5-6, 759 (in French, 760). —In the path of rapid β-rays with energies ranging from 1 to 3 m. e. v. in N there was observed the formation of branches δ-rays of 2 different types. The normal δ-rays obey the elastic-impact formula ($Q/E = (1 - \cos \alpha)/2$, where Q is the energy of the δ-ray, E the energy of the primary particle, and α the scattering angle in the normal system. The expts. showed that there were formed normal δ-rays which obey Moeller's equation, and that the electron scattering was also normal. The formation of the anomalous branches still remains unexplained. This phenomenon cannot be attributed to the inner conversion of the photons of the blocking radiation. A more detailed description of the investigations will be published later.

W. R. Henn

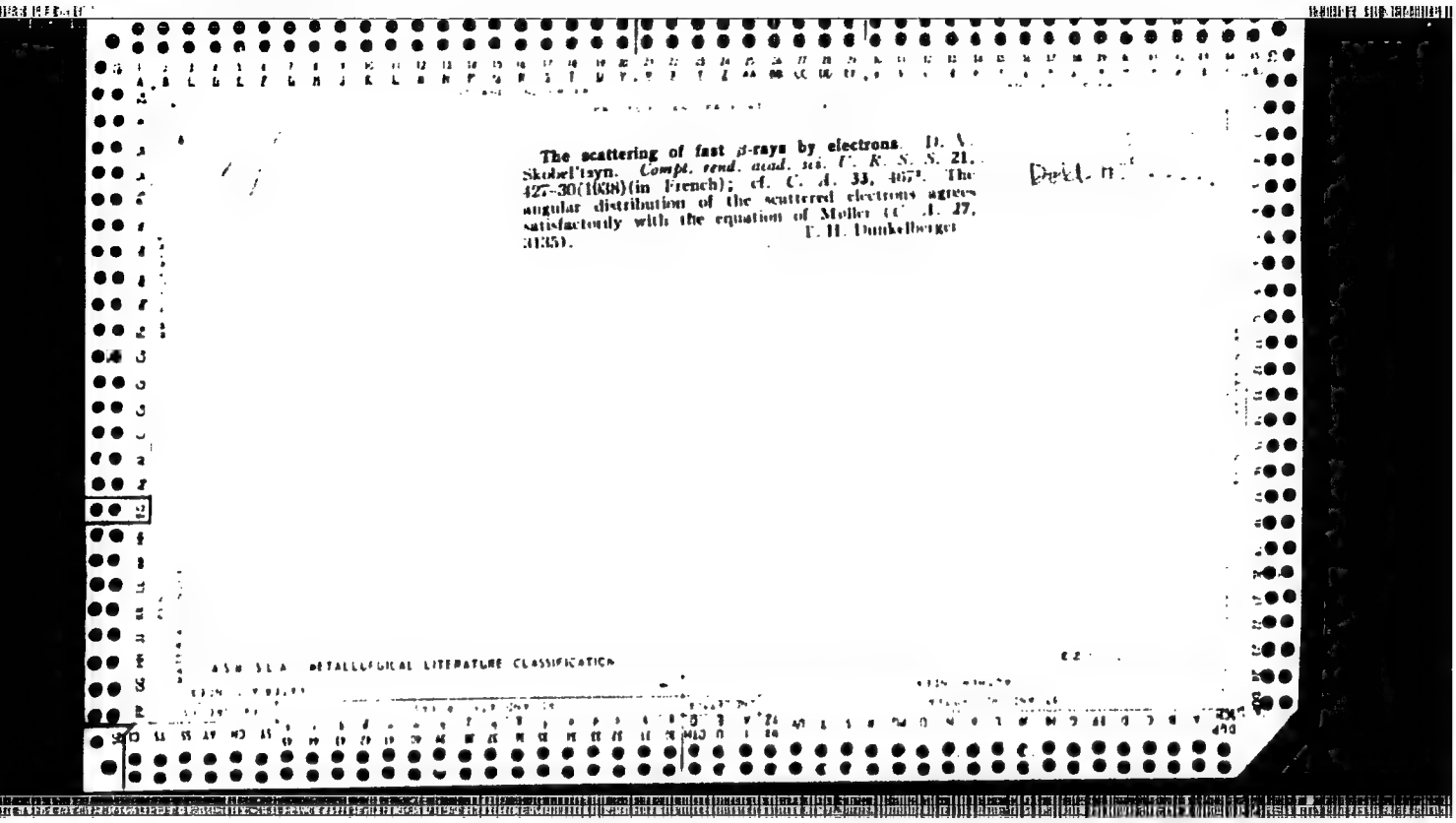
ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



8c

A-1

Abnormal phenomena accompanying the absorption of rapid β-rays. D. V. SKOBELTSYN (Bull. Acad. Sci. U.R.S.S., Sér. Phys., 1936, 75—90).—Examination of the tracks of rapid β-rays in N_2 by the Wilson method indicates anomalies in the region of speeds of 1000—2000 c.h.v. The abnormal diffusion formerly detected (A., 1936, 402) has been confirmed. The sudden loss of almost all the energy of a rapid β-particle on collision has been observed, the end of the range being marked by small branches due to abnormal δ-rays, of which the directions are distributed uniformly. A. J. M.



The scattering of fast β-rays by electrons. D. V. Skobel'tsyn. *Compt. rend. acad. sci. U. R. S. S.* 21, 427–30(1938)(in French); cf. *C. A.* 33, 407⁹. The angular distribution of the scattered electrons agrees satisfactorily with the equation of Møller (*C. A.* 27, 3135).

T. H. Dunkelberger

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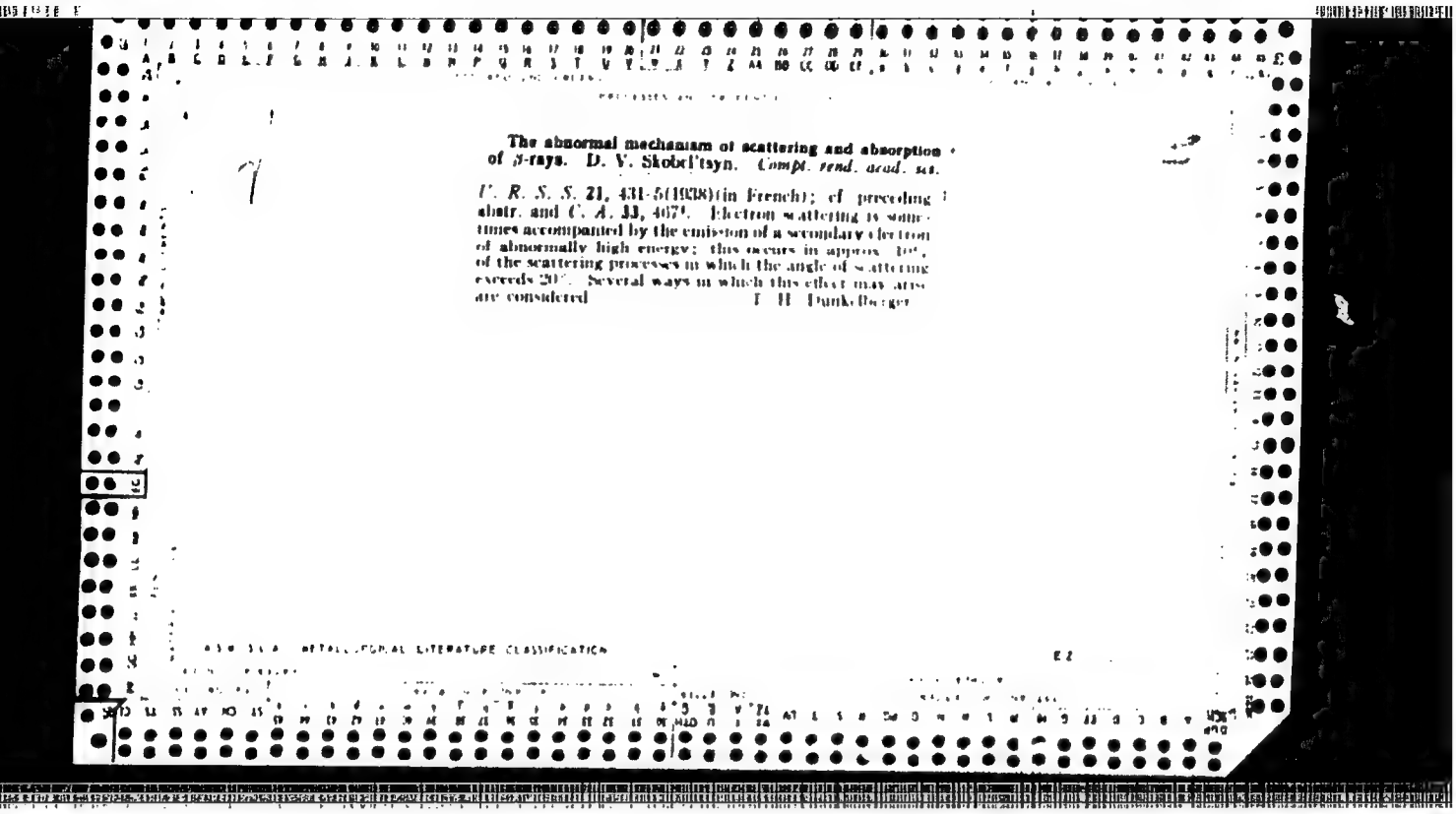

The abnormal mechanism of scattering and absorption of β-rays. D. V. Skobel'tsyn. *Compt. rend. acad. sci. U. R. S. S.* **21**, 431-5(1938)(in French); cf preceding abstr. and *C. A.* **33**, 4071. Electron scattering is sometimes accompanied by the emission of a secondary electron of abnormally high energy; this occurs in approx. 10⁻⁴ of the scattering processes in which the angle of scattering exceeds 20°. Several ways in which this effect may arise are considered. T. H. Dunkelberger

C-4

3

The nature and constitution of the cosmic rays. D. V. Skobel'tsyn. *Bull. acad. sci. U. R. S. S., Sér. phys.* 4, 245 (in English, 257) (1940). A review with the special emphasis on the difficulties of interpretation.

Roksalana Gamow

Izv. Ak Nauk SSSR

Ser. Fiz.

P.N. Lebedev Phys. Inst. - AS USSR

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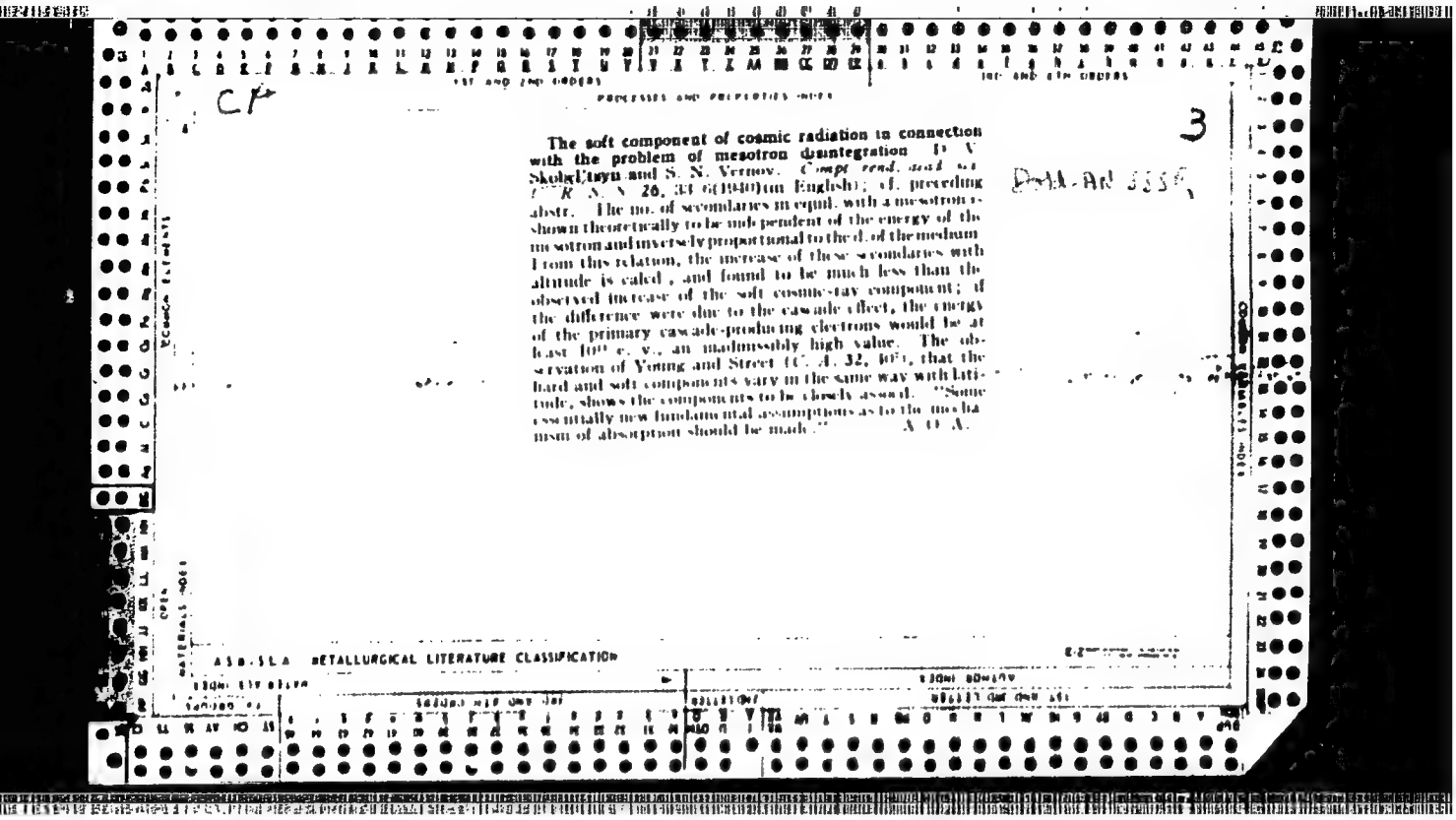
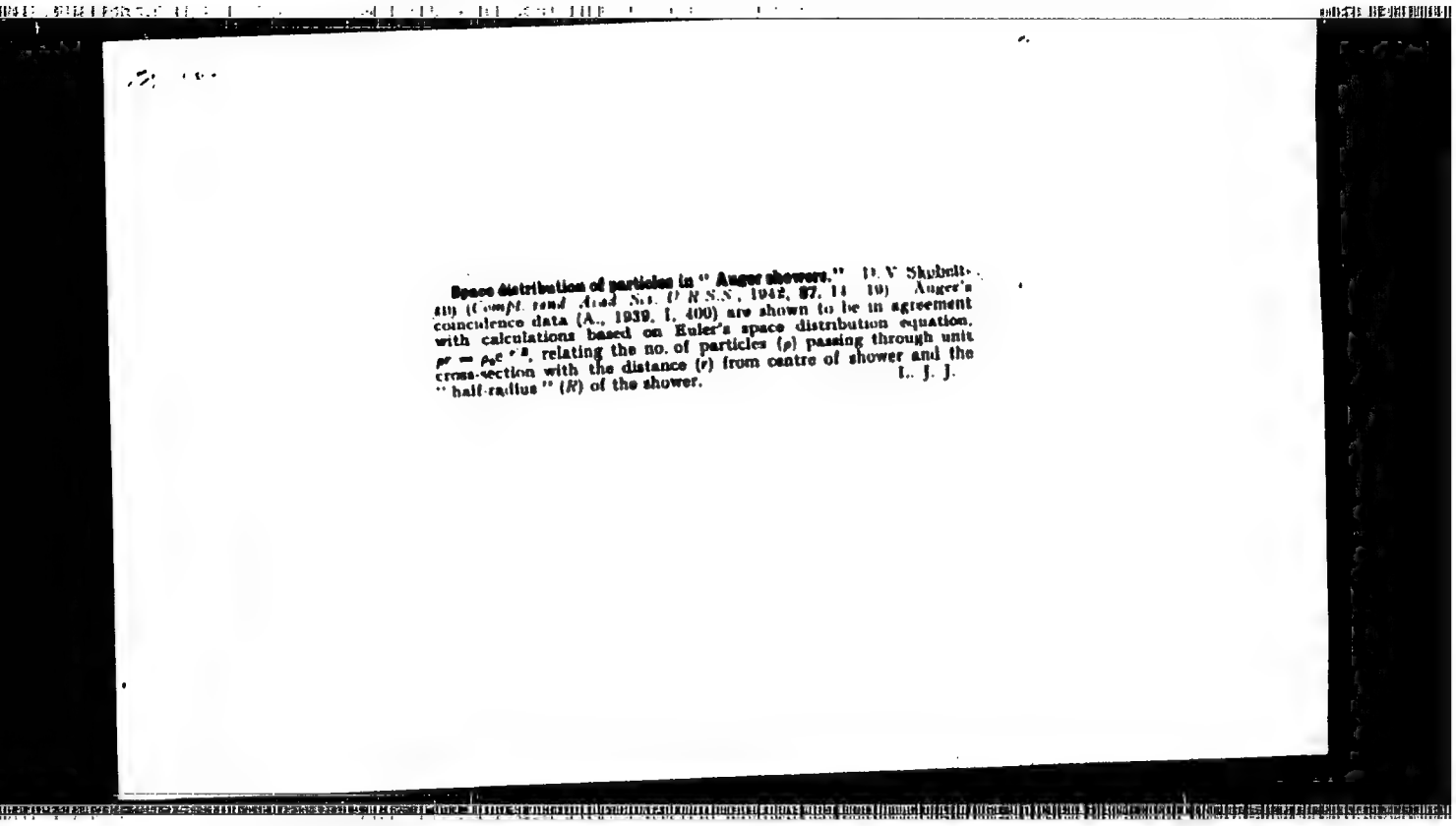


CP

3

The soft component of cosmic radiation in connection with the problem of mesotron disintegration I. V. Skobel'tsyn and S. N. Vernov. *Compt. rend. acad. sci. U.R.S.S.* 26, 31–6(1940)(in English); cf. preceding abstr. The no. of secondaries in equil. with a mesotron is shown theoretically to be independent of the energy of the mesotron and inversely proportional to the d. of the medium. From this relation, the increase of these secondaries with altitude is calcd., and found to be much less than the observed increase of the soft cosmic-ray component; if the difference were due to the cascade effect, the energy of the primary cascade-producing electrons would be at least 10^{11} e. v., an inadmissibly high value. The observation of Young and Street (C. A. 32, 10[illegible]), that the hard and soft components vary in the same way with latitude, shows the components to be closely associated. "Some essentially new fundamental assumptions as to the mechanism of absorption should be made." A. G. A.

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION



Space distribution of particles in "Auger showers." D. V. Skobel'tsyn (*Compt. rend. Acad. Sci. U.R.S.S.*, 1942, 37, 14–19). Auger's coincidence data (A., 1939, I, 400) are shown to be in agreement with calculations based on Euler's space distribution equation, $\rho r = \rho_0 e^{-r/R}$, relating the no. of particles (ρ) passing through unit cross-section with the distance (r) from centre of shower and the "half-radius" (R) of the shower. L. J. J.

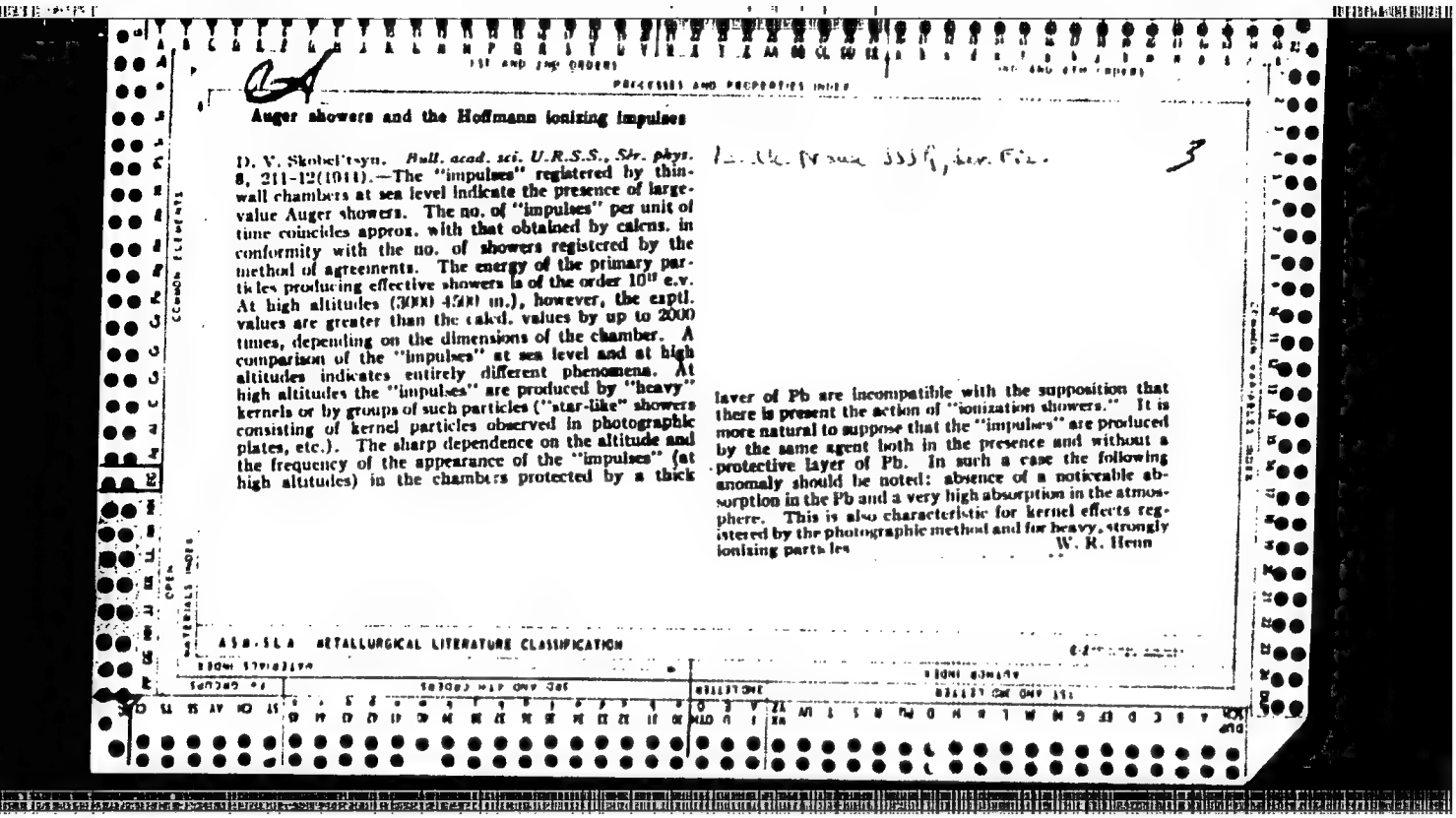
Altitude-dependence of Auger showers and the primary spectrum of cosmic radiation. D. V. Skobeltzin (*Compt. rend. Acad. Sci. U.R.S.S.*, 1942, **37**, 52 – 57; cf. A., 1943, I, 294).—Mathematical.

N. M. B.

P.N.Lebedev Phys.Inst., AS USSR.

[illegible], [illegible]

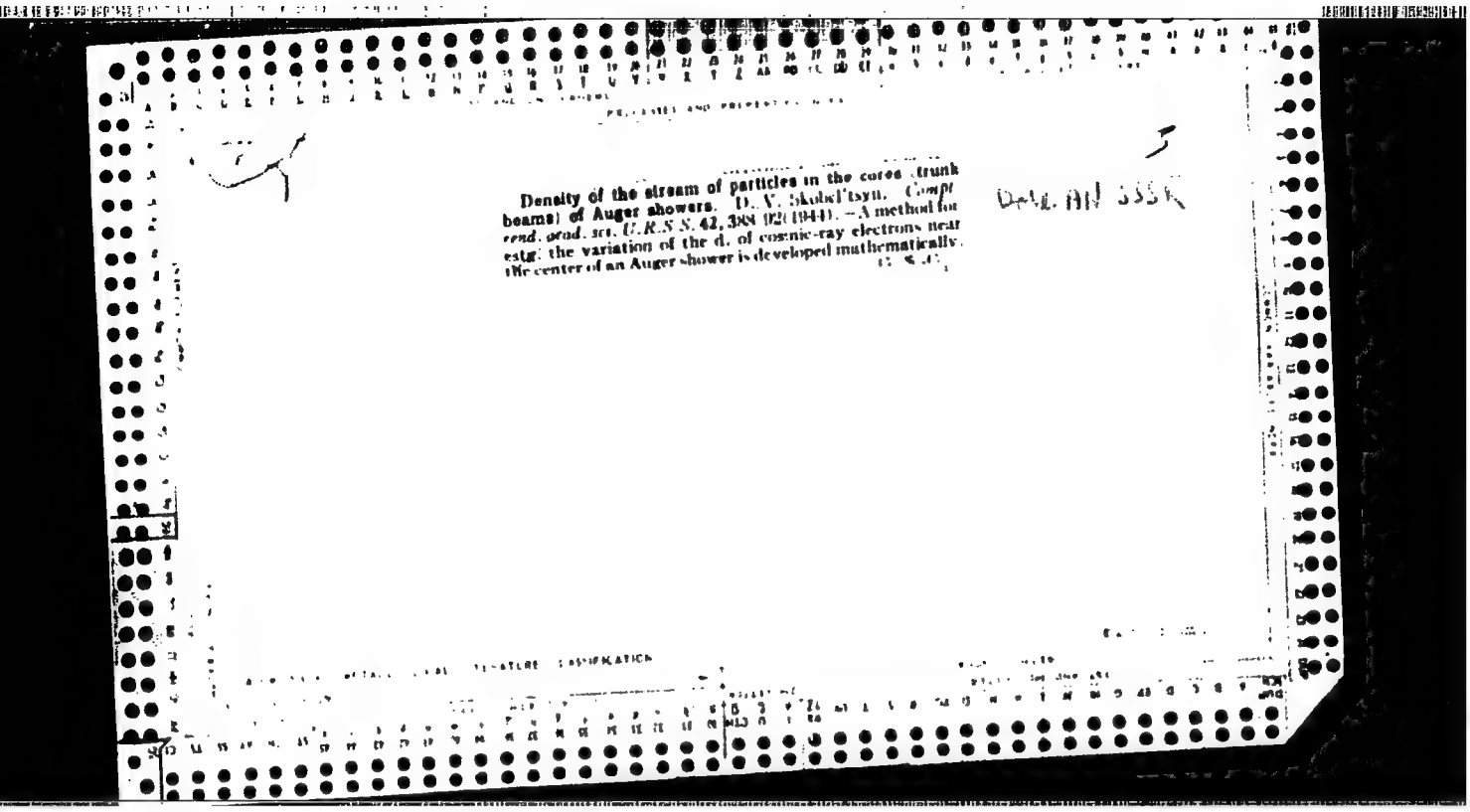
"'Trunk' [illegible] of the [illegible] Showers as [illegible] by the Method of Coincidences,"
Dok AN [illegible], No 2, [illegible]
Dokl. AN SSSR,
[illegible], AS USSR
P.N. Lebedev [illegible] Inst., AS USSR



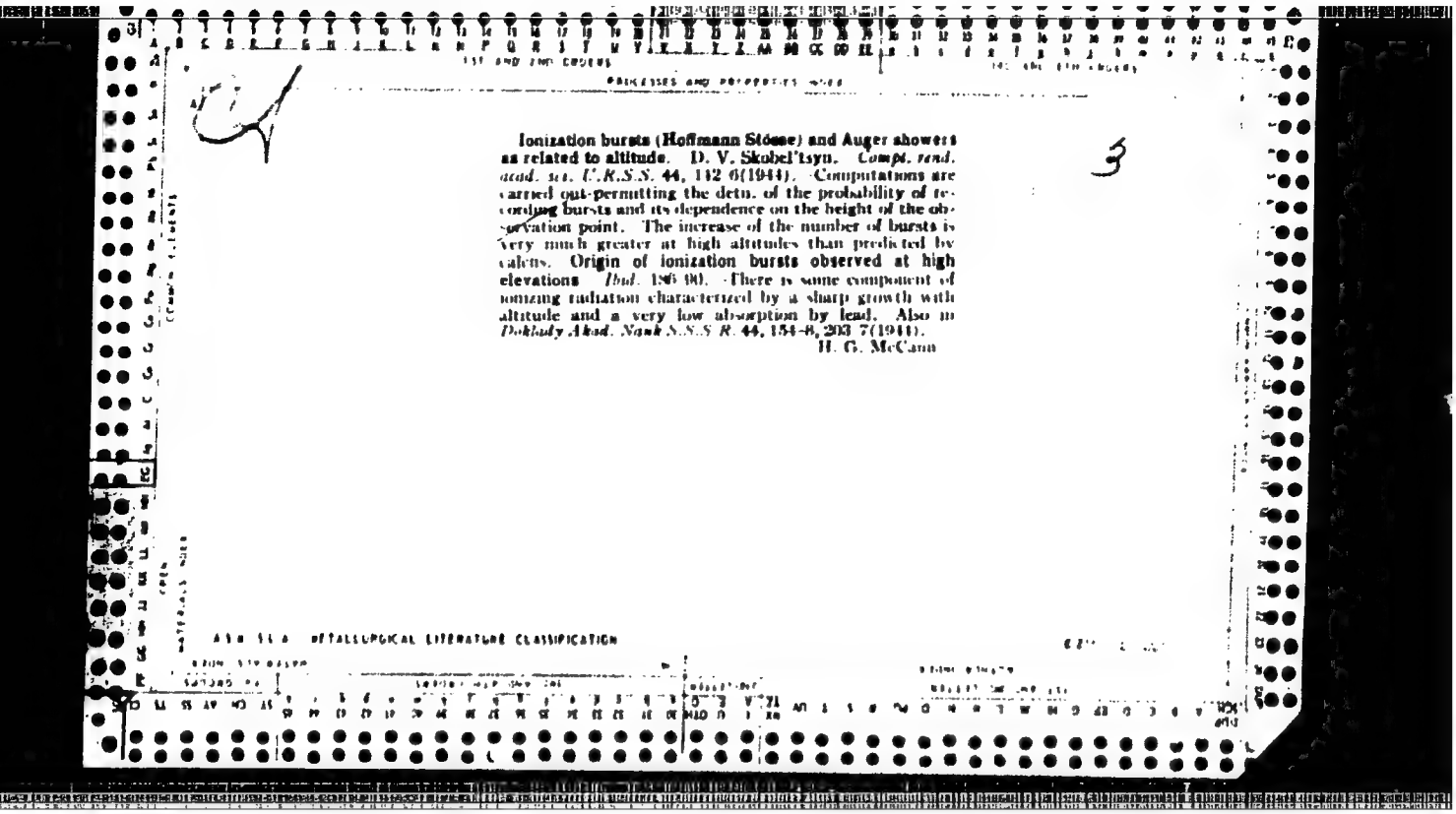
Auger showers and the Hoffmann ionizing impulses

D. V. Skobel'tsyn. *Bull. acad. sci. U.R.S.S., Sér. phys.* 8, 211-12(1944).—The "impulses" registered by thin-wall chambers at sea level indicate the presence of large-value Auger showers. The no. of "impulses" per unit of time coincides approx. with that obtained by calcns. in conformity with the no. of showers registered by the method of agreements. The energy of the primary particles producing effective showers is of the order 10^{15} e.v. At high altitudes (3000 4500 m.), however, the exptl. values are greater than the calcd. values by up to 2000 times, depending on the dimensions of the chamber. A comparison of the "impulses" at sea level and at high altitudes indicates entirely different phenomena. At high altitudes the "impulses" are produced by "heavy" kernels or by groups of such particles ("star-like" showers consisting of kernel particles observed in photographic plates, etc.). The sharp dependence on the altitude and the frequency of the appearance of the "impulses" (at high altitudes) in the chambers protected by a thick layer of Pb are incompatible with the supposition that there is present the action of "ionization showers." It is more natural to suppose that the "impulses" are produced by the same agent both in the presence and without a protective layer of Pb. In such a case the following anomaly should be noted: absence of a noticeable absorption in the Pb and a very high absorption in the atmosphere. This is also characteristic for kernel effects registered by the photographic method and for heavy, strongly ionizing particles

W. R. Henn

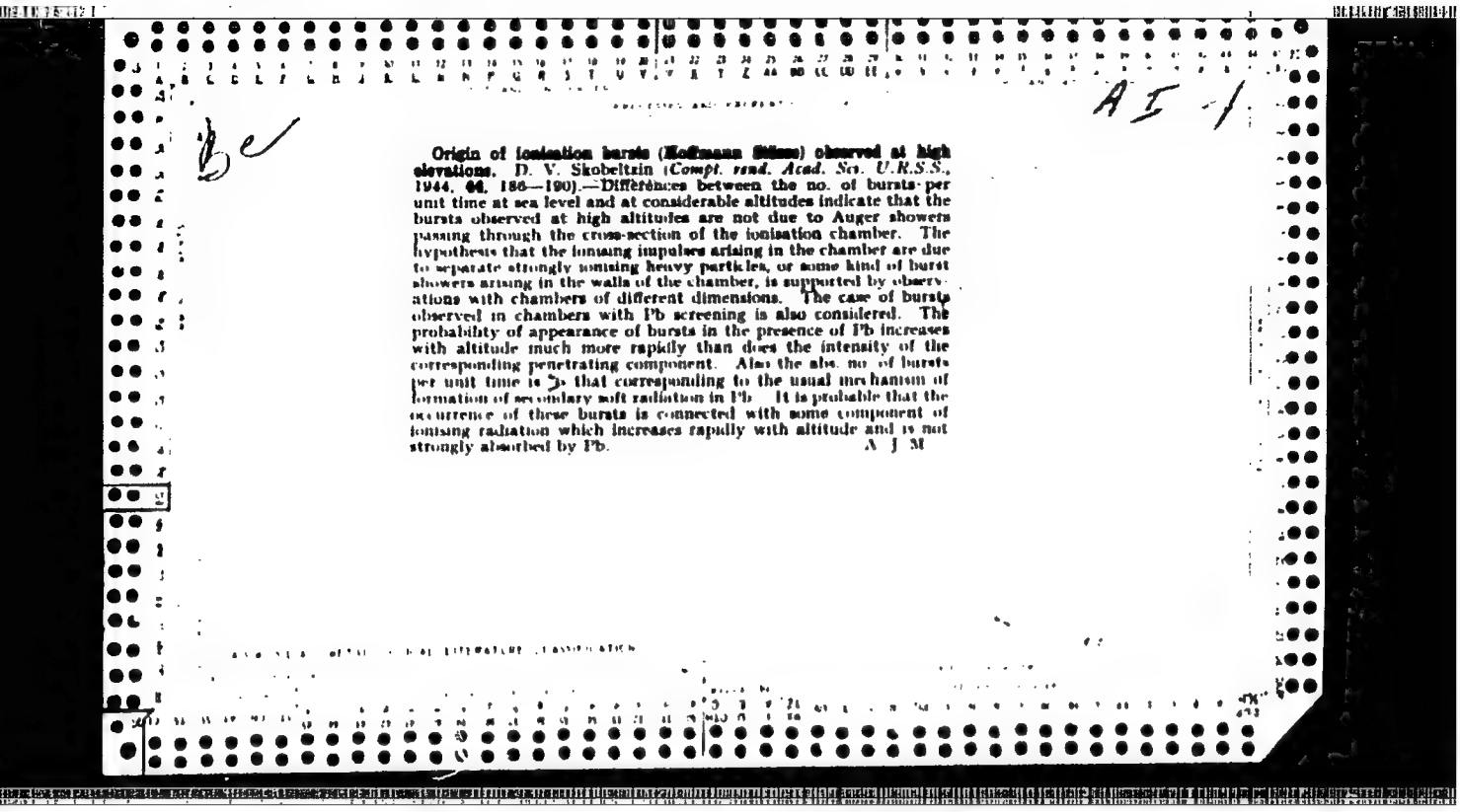


Density of the stream of particles in the cores (trunk beams) of Auger showers. D. V. Skobel'tsyn. *Compt. rend. acad. sci. U.R.S.S.* 42, 384 (1944). — A method for estg. the variation of the d. of cosmic-ray electrons near the center of an Auger shower is developed mathematically.

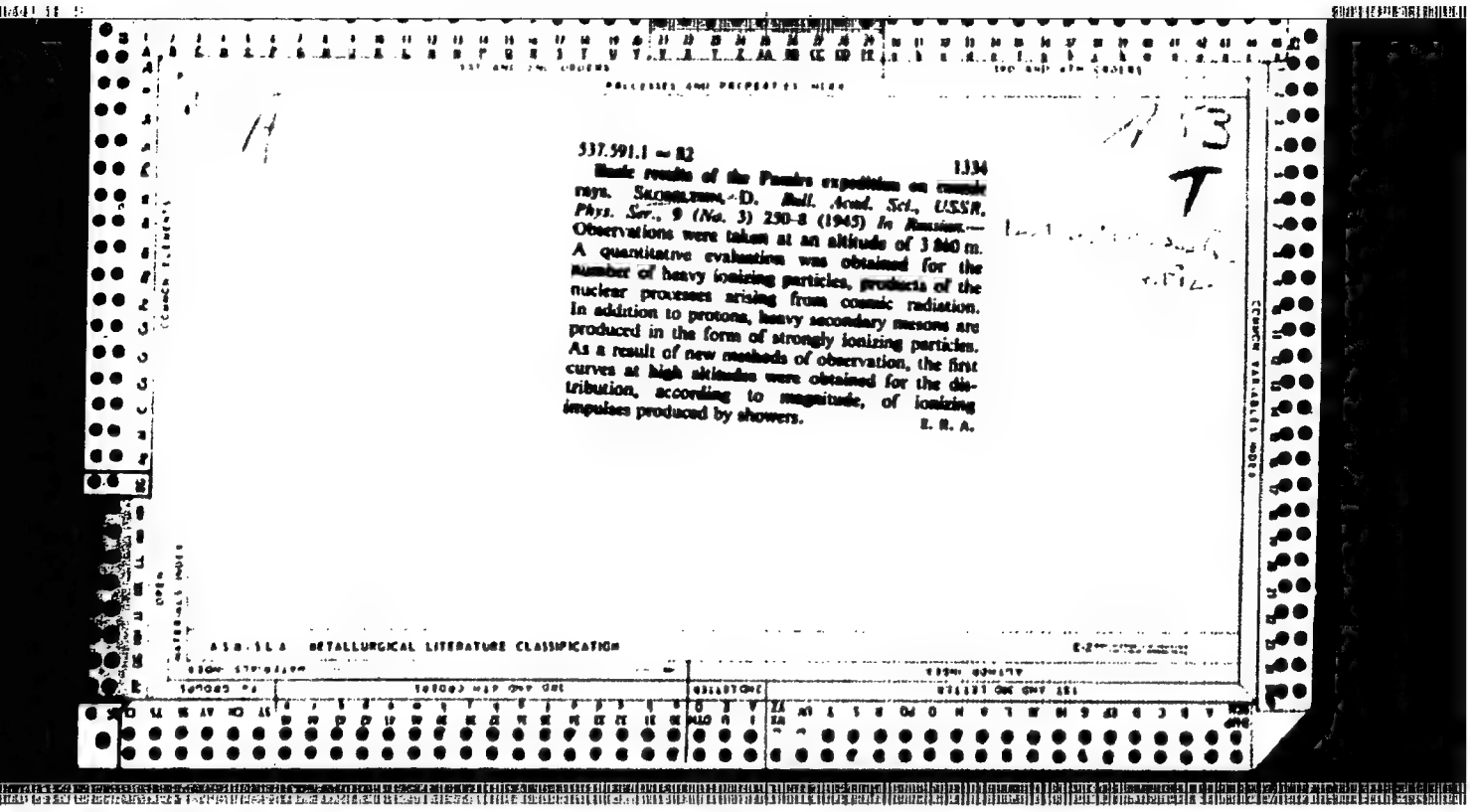


Ionization bursts (Hoffmann Stösse) and Auger showers as related to altitude. D. V. Skobel'tsyn. *Compt. rend. acad. sci. U.R.S.S.* 44, 142-6(1944). Computations are carried out permitting the detn. of the probability of recording bursts and its dependence on the height of the observation point. The increase of the number of bursts is very much greater at high altitudes than predicted by calcns. **Origin of ionization bursts observed at high elevations.** *Ibid.* 186-90. There is some component of ionizing radiation characterized by a sharp growth with altitude and a very low absorption by lead. Also in *Doklady Akad. Nauk S.S.S.R.* 44, 154-8, 203-7(1944).

H. G. McCann



Origin of ionisation bursts (Hoffmann Stösse) observed at high elevations. D. V. Skobeltzin (*Compt. rend. Acad. Sci. U.R.S.S.*, 1944, **44**, 186—190).—Differences between the no. of bursts per unit time at sea level and at considerable altitudes indicate that the bursts observed at high altitudes are not due to Auger showers passing through the cross-section of the ionisation chamber. The hypothesis that the ionising impulses arising in the chamber are due to separate strongly ionising heavy particles, or some kind of burst showers arising in the walls of the chamber, is supported by observations with chambers of different dimensions. The case of bursts observed in chambers with Pb screening is also considered. The probability of appearance of bursts in the presence of Pb increases with altitude much more rapidly than does the intensity of the corresponding penetrating component. Also the abs. no. of bursts per unit time is > that corresponding to the usual mechanism of formation of secondary soft radiation in Pb. It is probable that the occurrence of these bursts is connected with some component of ionising radiation which increases rapidly with altitude and is not strongly absorbed by Pb. A. J. M.



537.591.1 — 82 1334

Basic results of the Pamirs expedition on cosmic rays. SKOBELTSYN, D. *Bull. Acad. Sci., USSR, Phys. Ser.*, 9 (No. 3) 250-8 (1945) *In Russian.*— Observations were taken at an altitude of 3 860 m. A quantitative evaluation was obtained for the number of heavy ionizing particles, products of the nuclear processes arising from cosmic radiation. In addition to protons, heavy secondary mesons are produced in the form of strongly ionizing particles. As a result of new methods of observation, the first curves at high altitudes were obtained for the distribution, according to magnitude, of ionizing impulses produced by showers. E. R. A.

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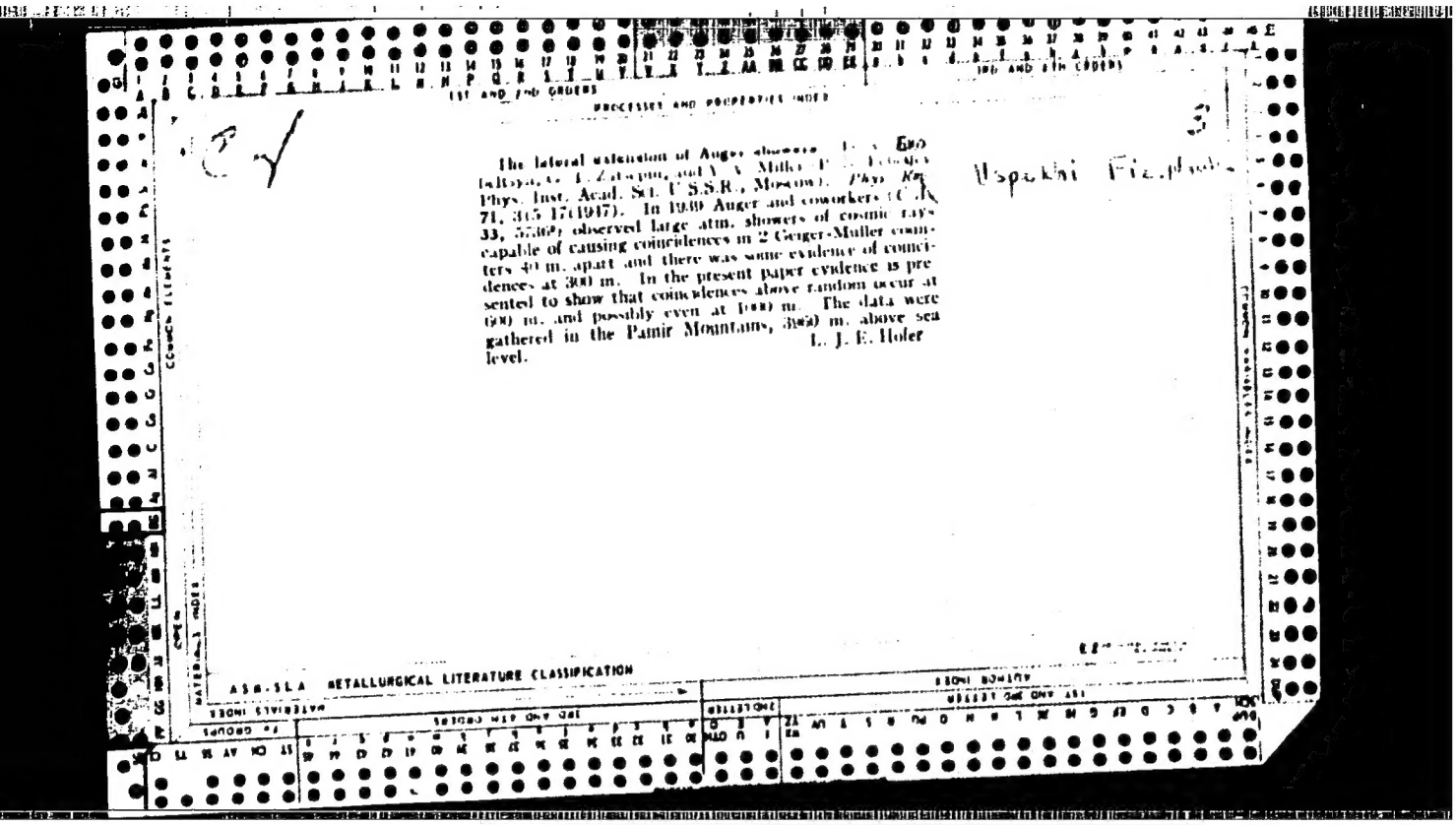

The lateral extension of Auger showers [illegible] L. Zatsepin, and V. V. Miller [illegible] Phys. Inst. Acad. Sci. U.S.S.R., Moscow). *Phys. Rev.* 71, 315-17(1947). In 1939 Auger and coworkers (*C.R.* 33, 5736) observed large atm. showers of cosmic rays capable of causing coincidences in 2 Geiger-Muller counters 40 m. apart and there was some evidence of coincidences at 300 m. In the present paper evidence is presented to show that coincidences above random occur at (90) m. and possibly even at [illegible] m. The data were gathered in the Pamir Mountains, 3860 m. above sea level.

L. J. E. Hofer

Uspekhi Fiz[illegible]

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

SHCHEL'TSYN, D. I. and I.V. Selinov

"The Atomic Bomb," Bol'shaya Sovetskaya Entsiklopediya, Vol. 3, 2nd edition, p. 427, 1949

GURO, G., NIKOLAEV, V.., RAZORENOV, L., CHIVILO,I. and SKOVeltsyn* D.V.

Altitute travel and curves of absorption in the angle of particles which generate impacts in the ionization chamber at heights os 3860 and 4700 meters.
(Presented by Academician D.V. Skobeltsyn* 20 May 1949.)

Reports of the academy of Sciences USSR Vol. 57, No.3, Sept. 23, 1949.

PA 54/49T95

USSR/Nuclear Physics — Jul 49
Cosmic Rays
Geiger Counters

"Critically Extensive Atmospheric Showers of Cosmic Radiation," Acad D. V. Skobel'tsyn, Phys Inst imeni P. N. Lebedev, Acad Sci USSR, 4 pp

"Dok Ak Nauk SSSR" Vol LXVII, No 1

Observations at 3,860 meters showed that more coincidences caused by atmospheric showers in Geiger counters could be observed in separating the counters by a distance of about 1,000 meters than within previous limits. When such coincidences were calculated by

[redacted] 54/49T95

USSR/Nuclear Physics (Contd) — Jul 49

successive application of the avalanche theory, effect exceeded experimental results only by a small percent. Submitted 12 May 49.

[redacted] 54/49T95

... ELITSYN, P. V.